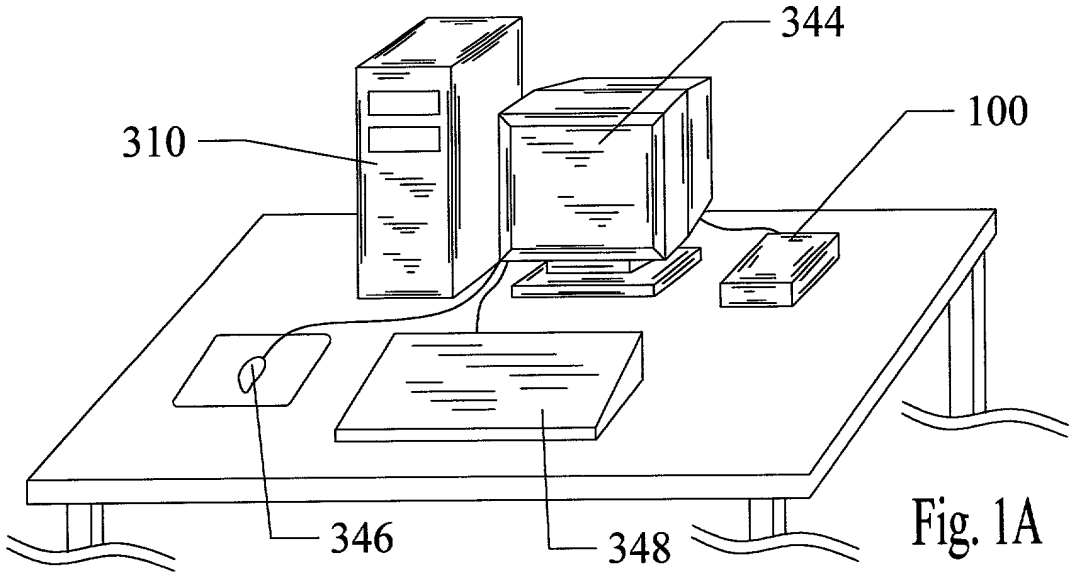


Fig. 1A

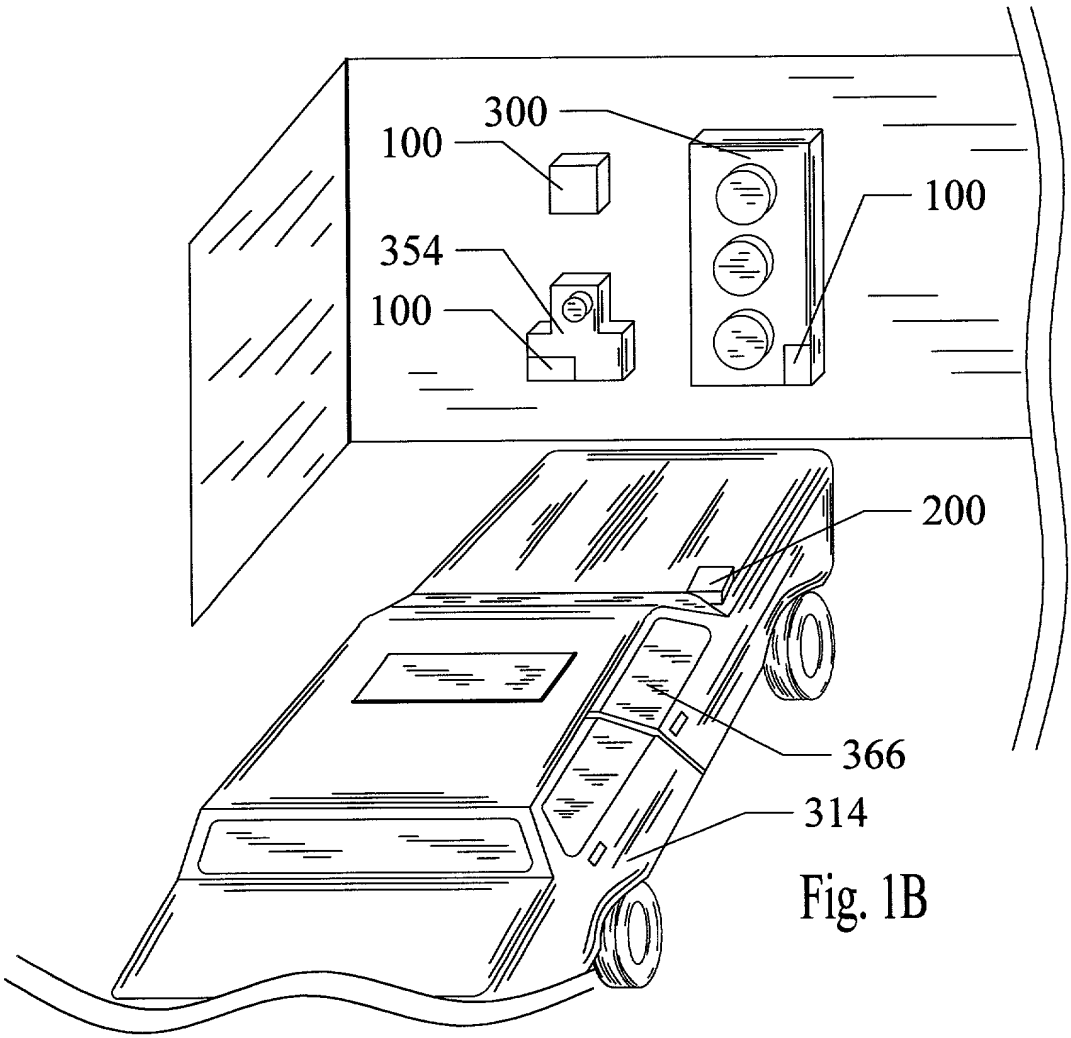


Fig. 1B

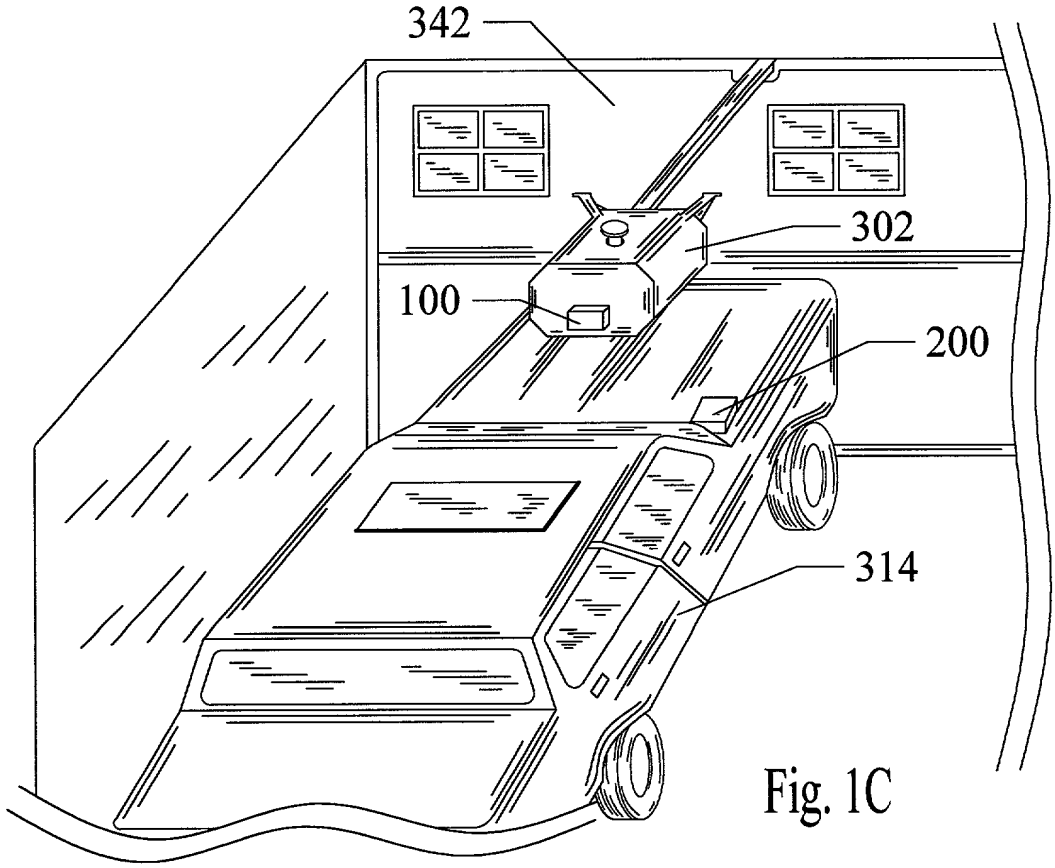


Fig. 1C

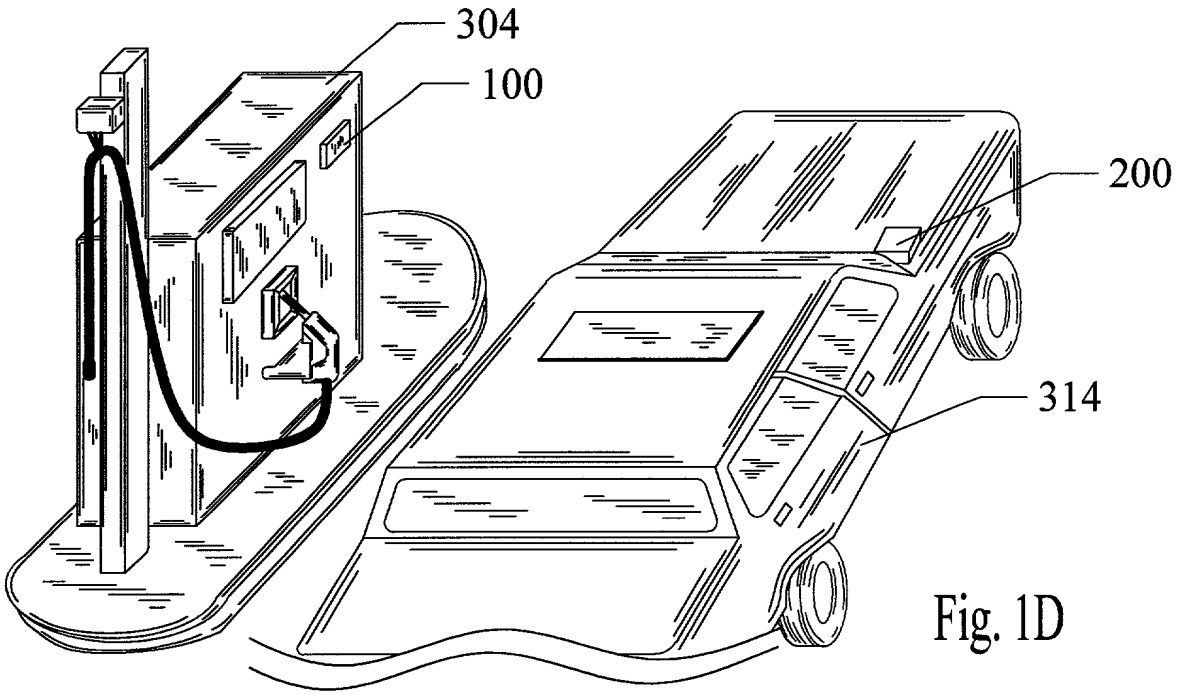


Fig. 1D

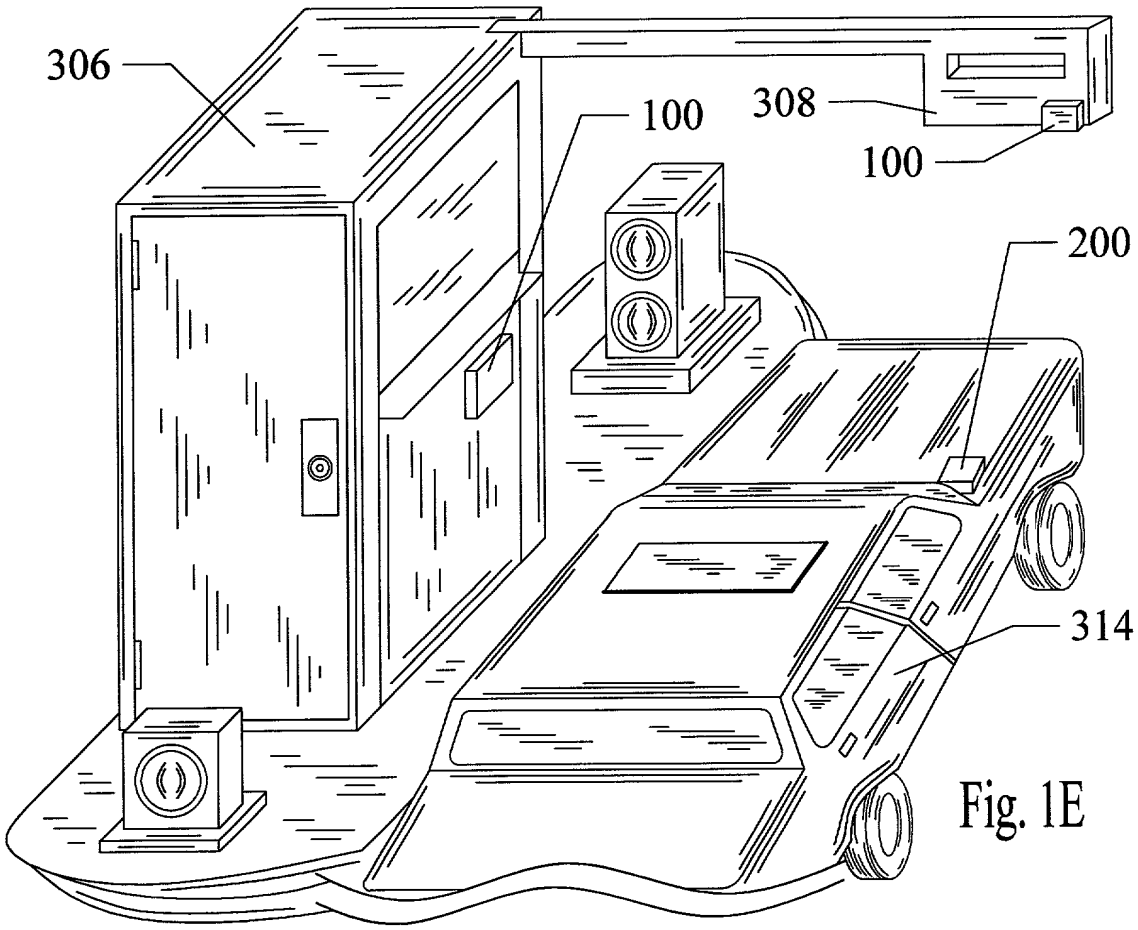


Fig. 1E

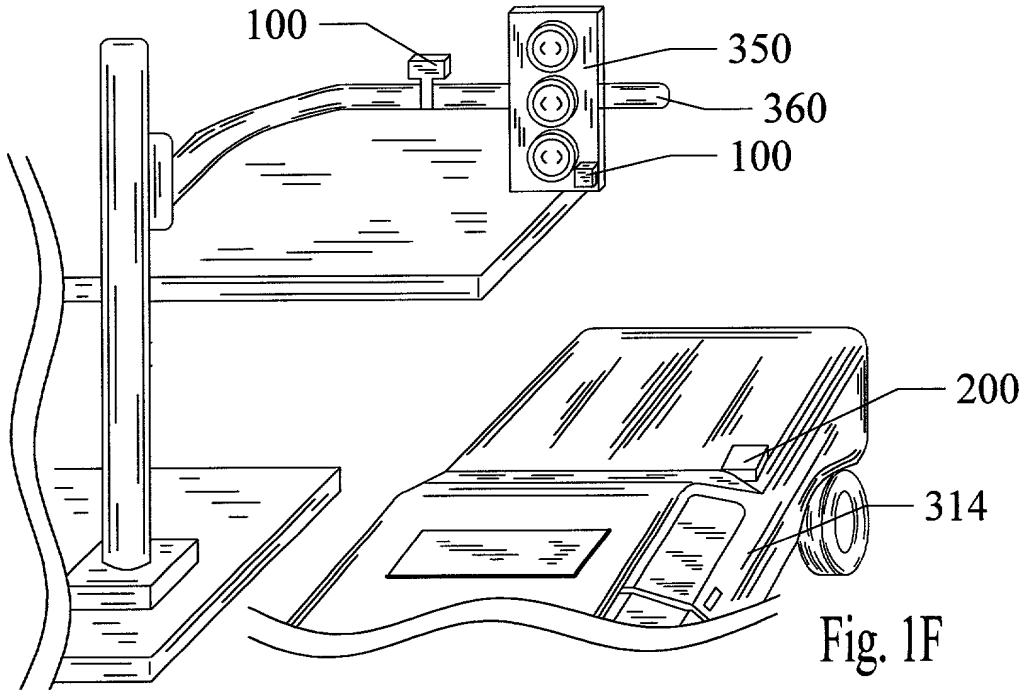


Fig. 1F

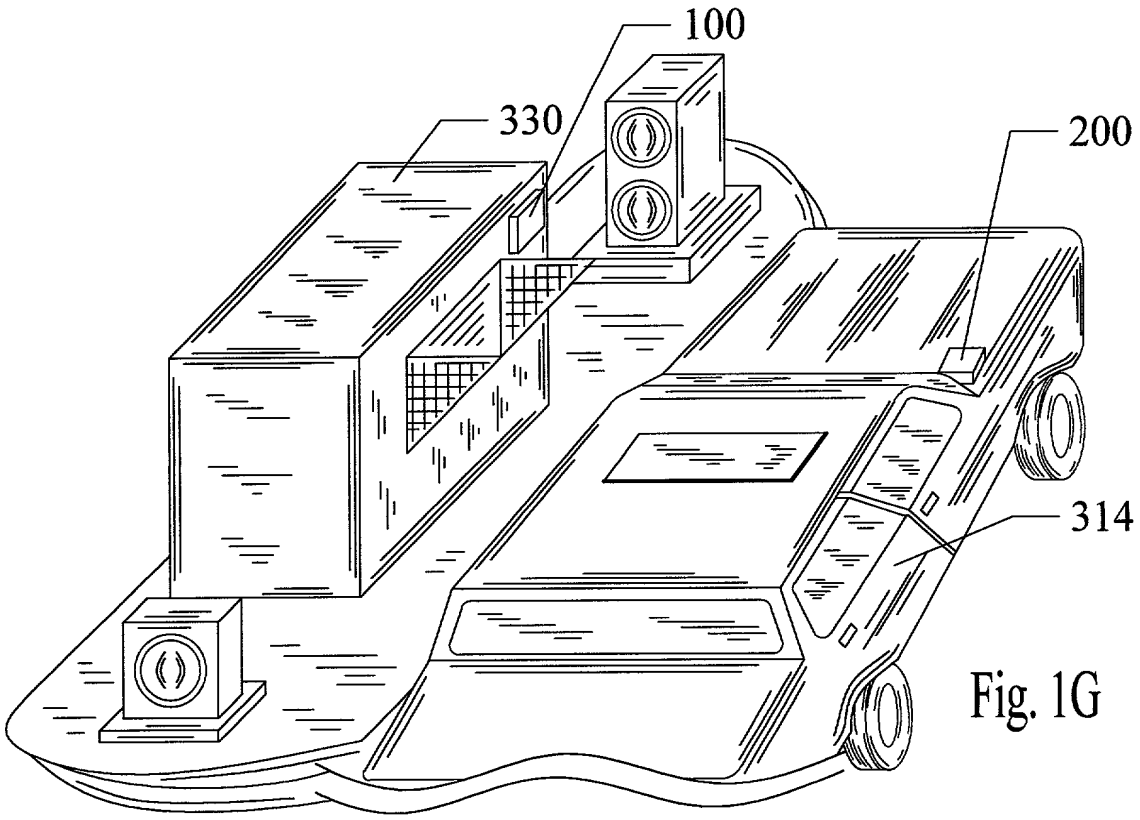


Fig. 1G

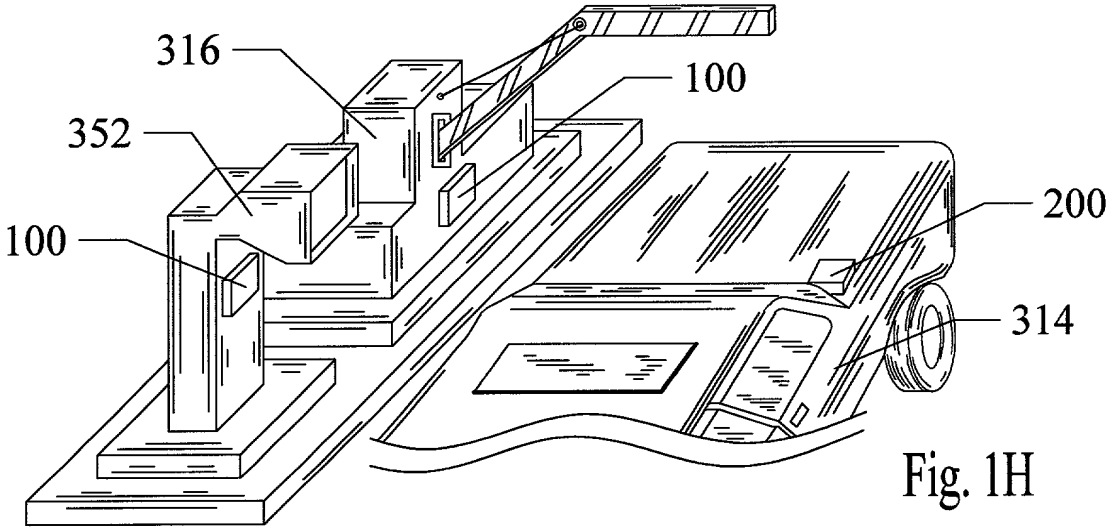


Fig. 1H

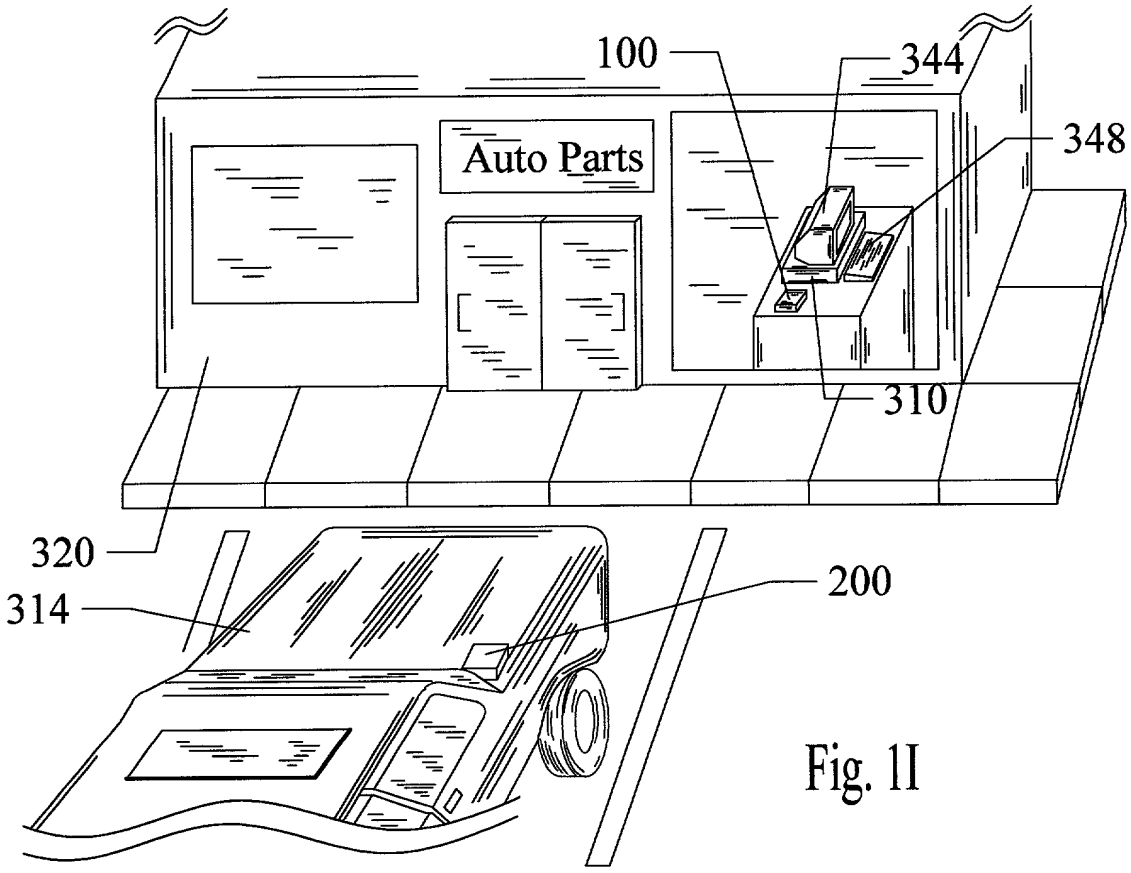


Fig. 1I

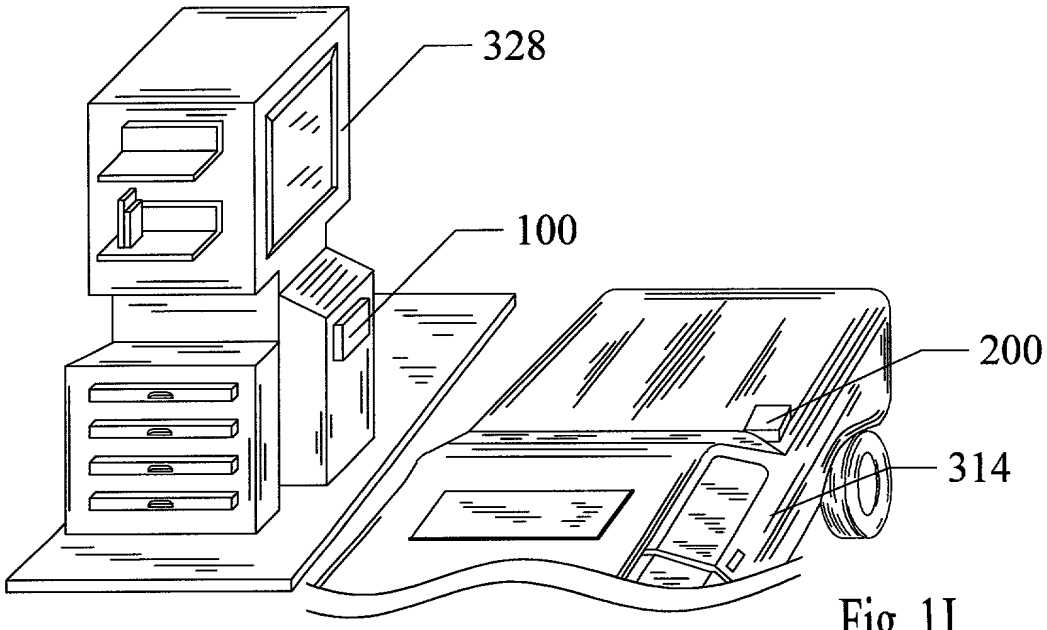


Fig. 1J

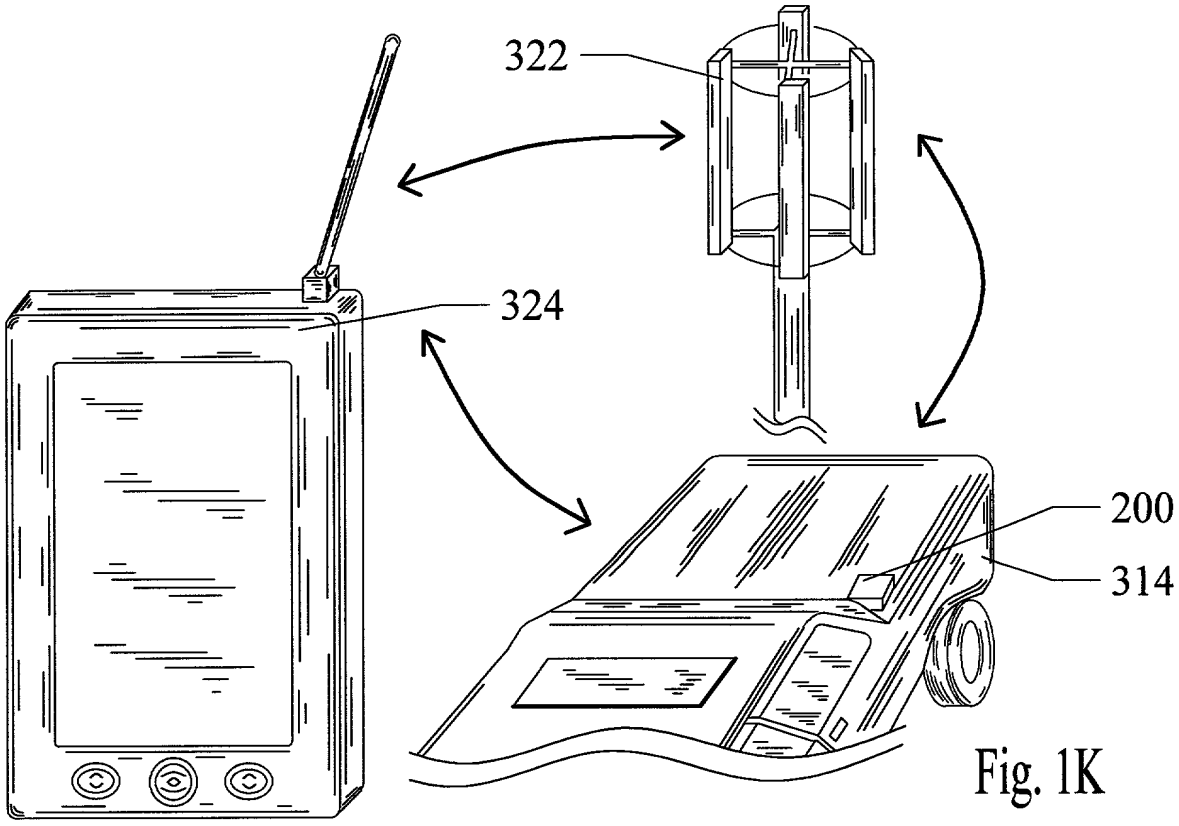


Fig. 1K

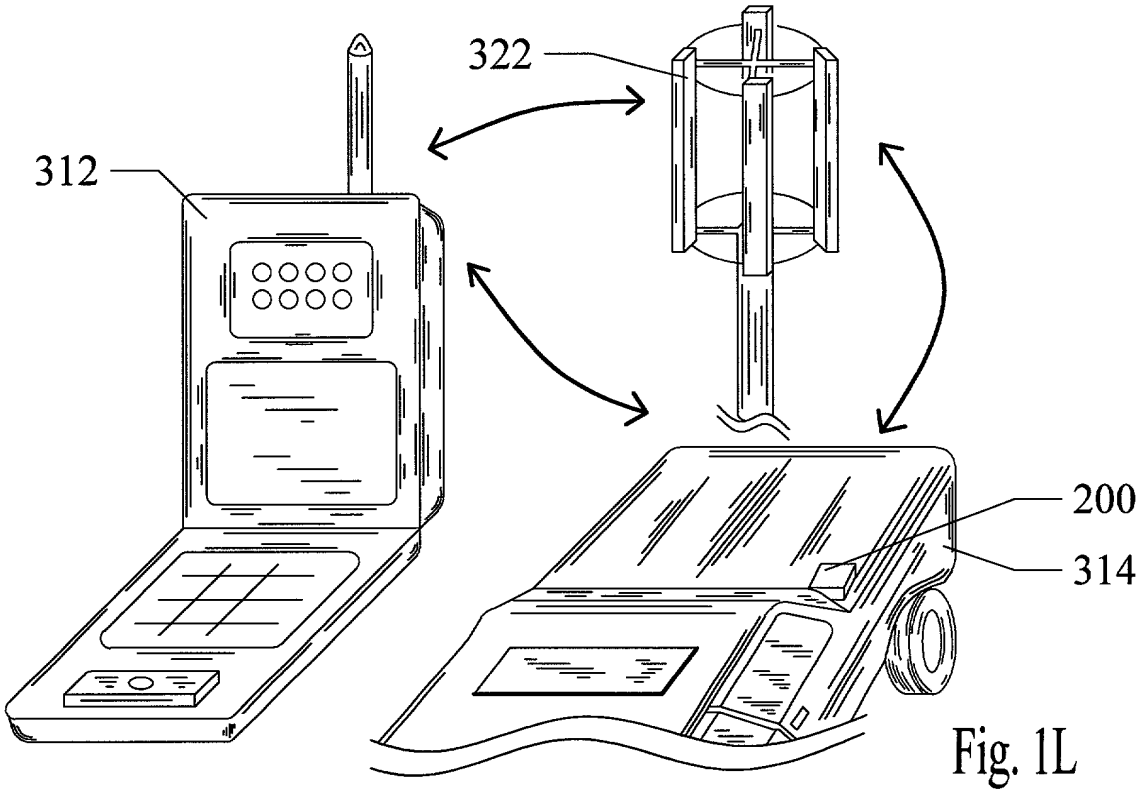


Fig. 1L

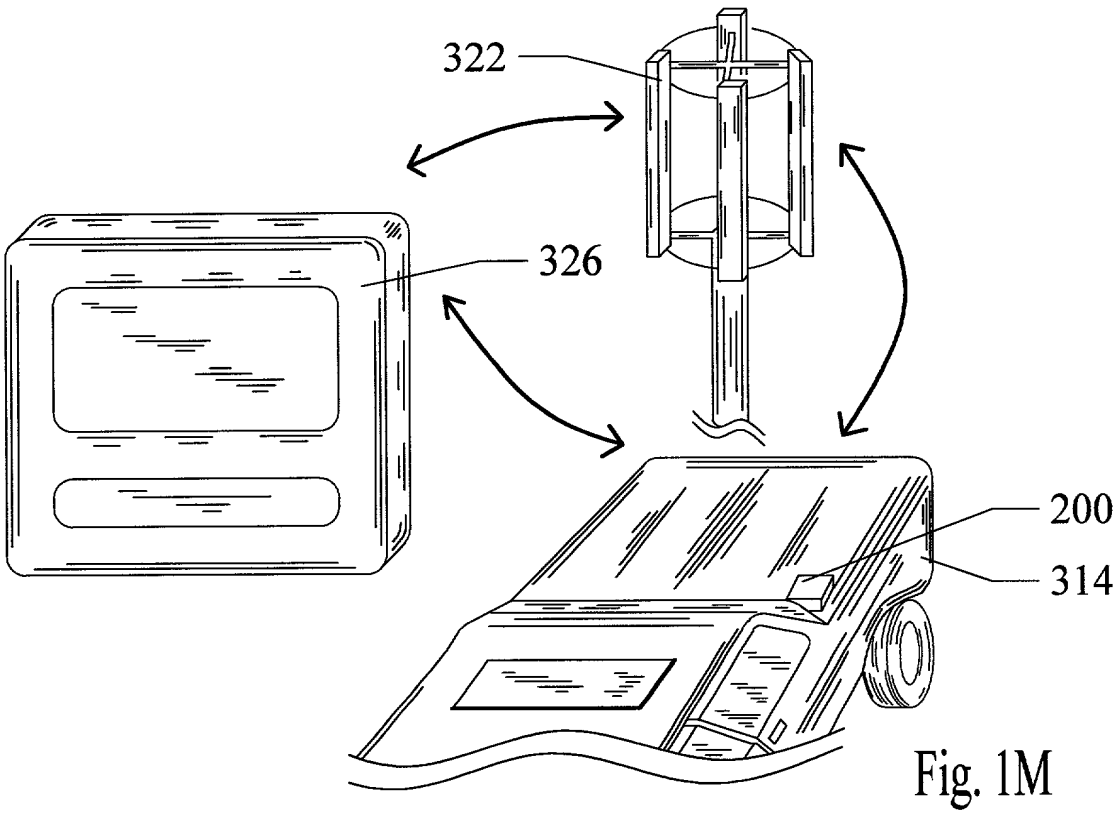


Fig. 1M

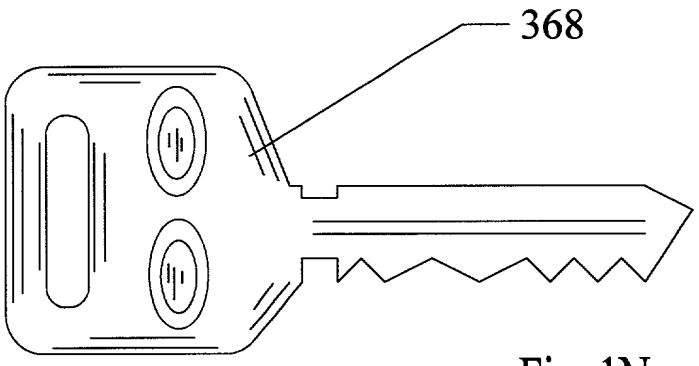


Fig. 1N

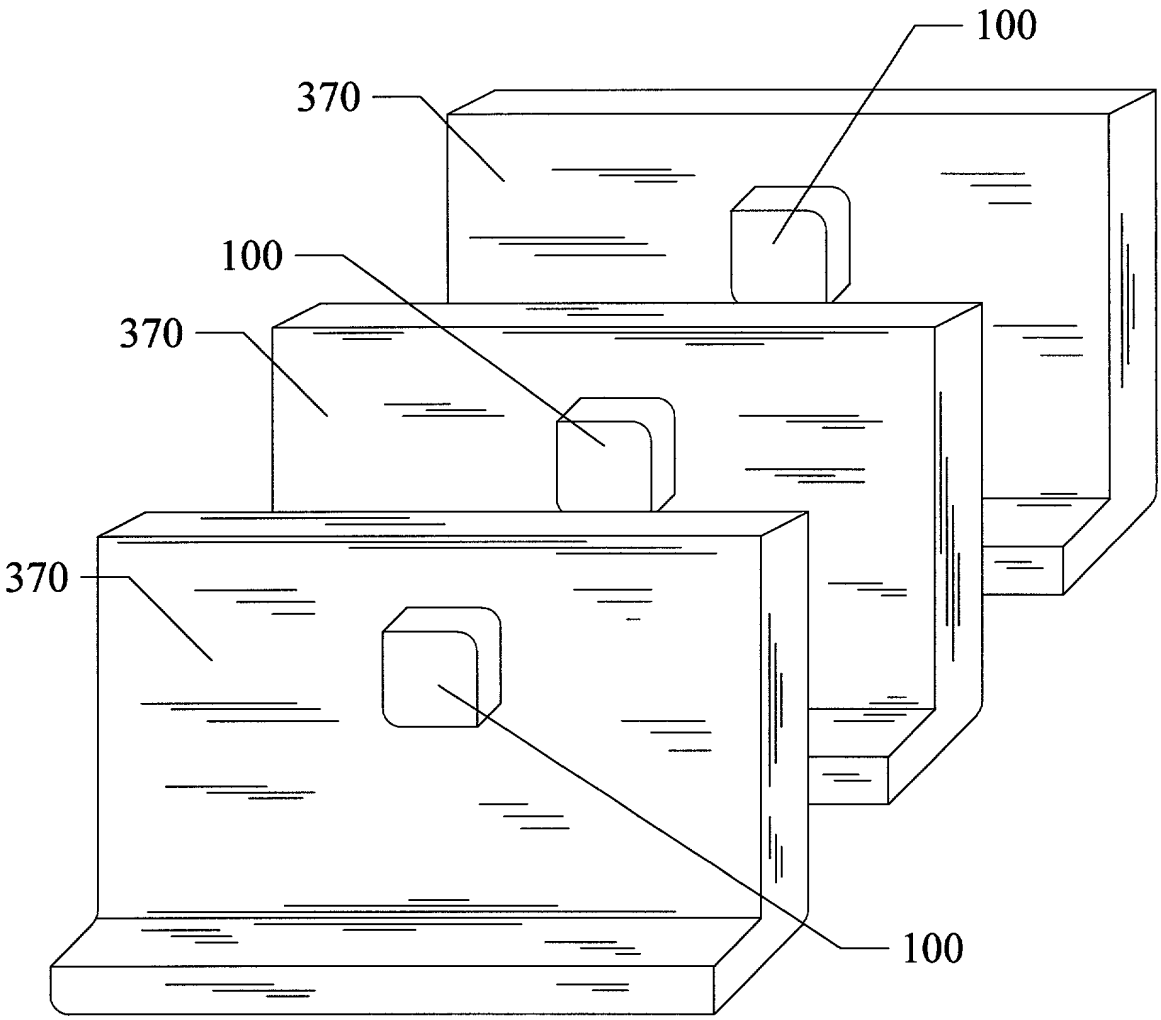


Fig. 1P

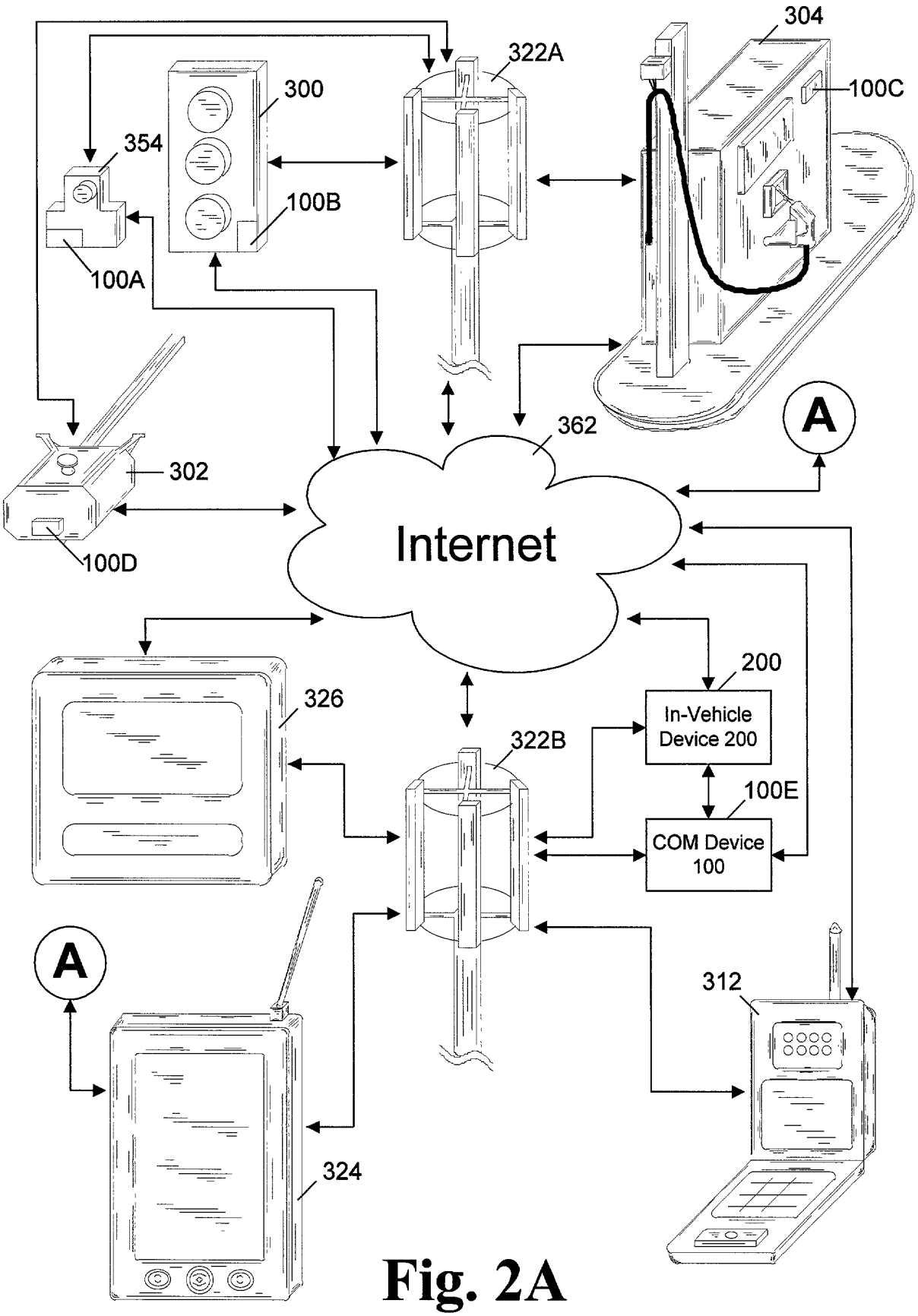

304
322A
300
100C
354
100B
100A
362
A
302
Internet
100D
326
200
In-Vehicle Device 200
322B
100E
COM Device 100
A
312
324

Fig. 2A

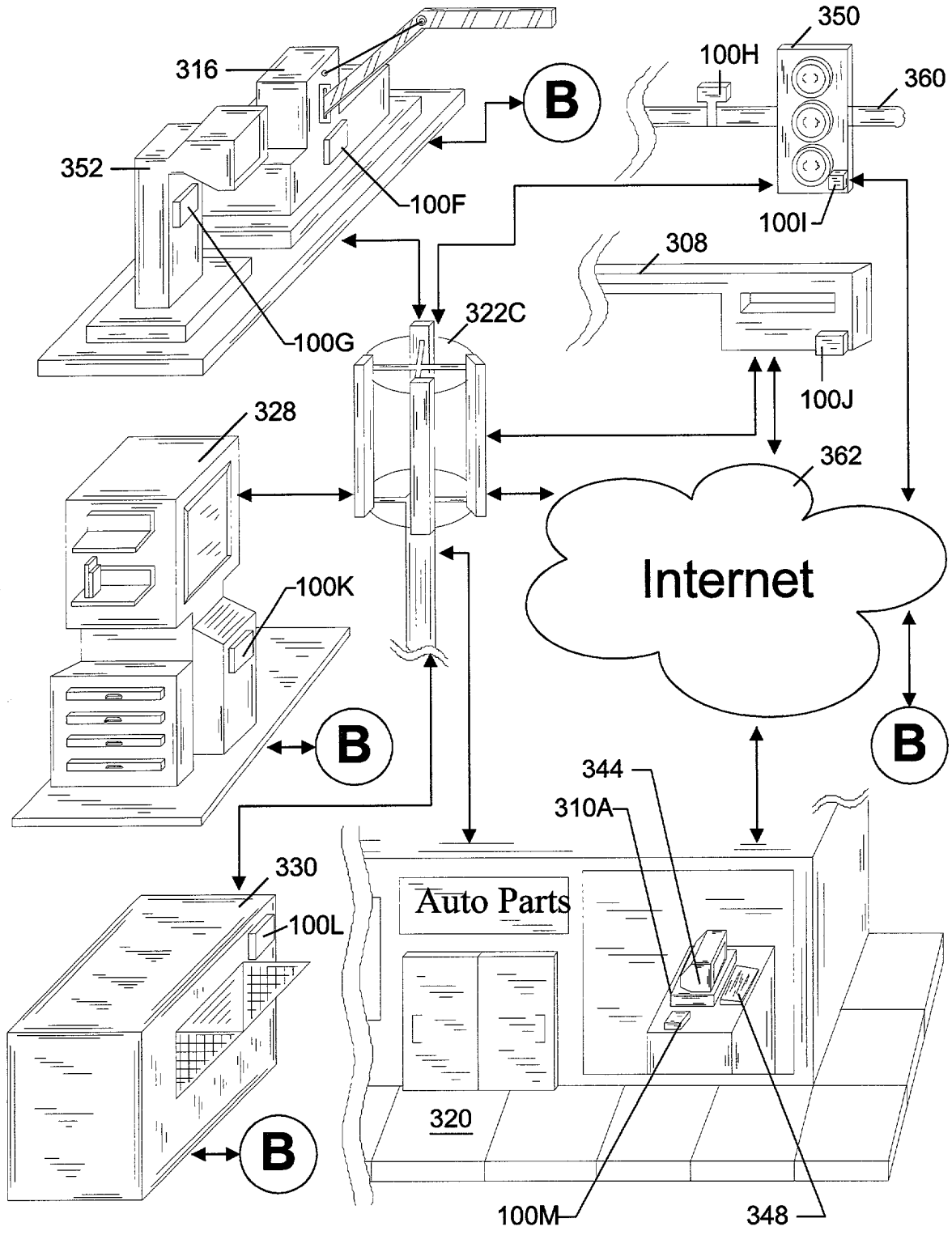

316
B
352
100F
350
100H
360
100I
308
322C
100G
100J
328
362
Internet
100K
B
B
344
310A
330
Auto Parts
100L
320
B
100M
348

Fig. 2B

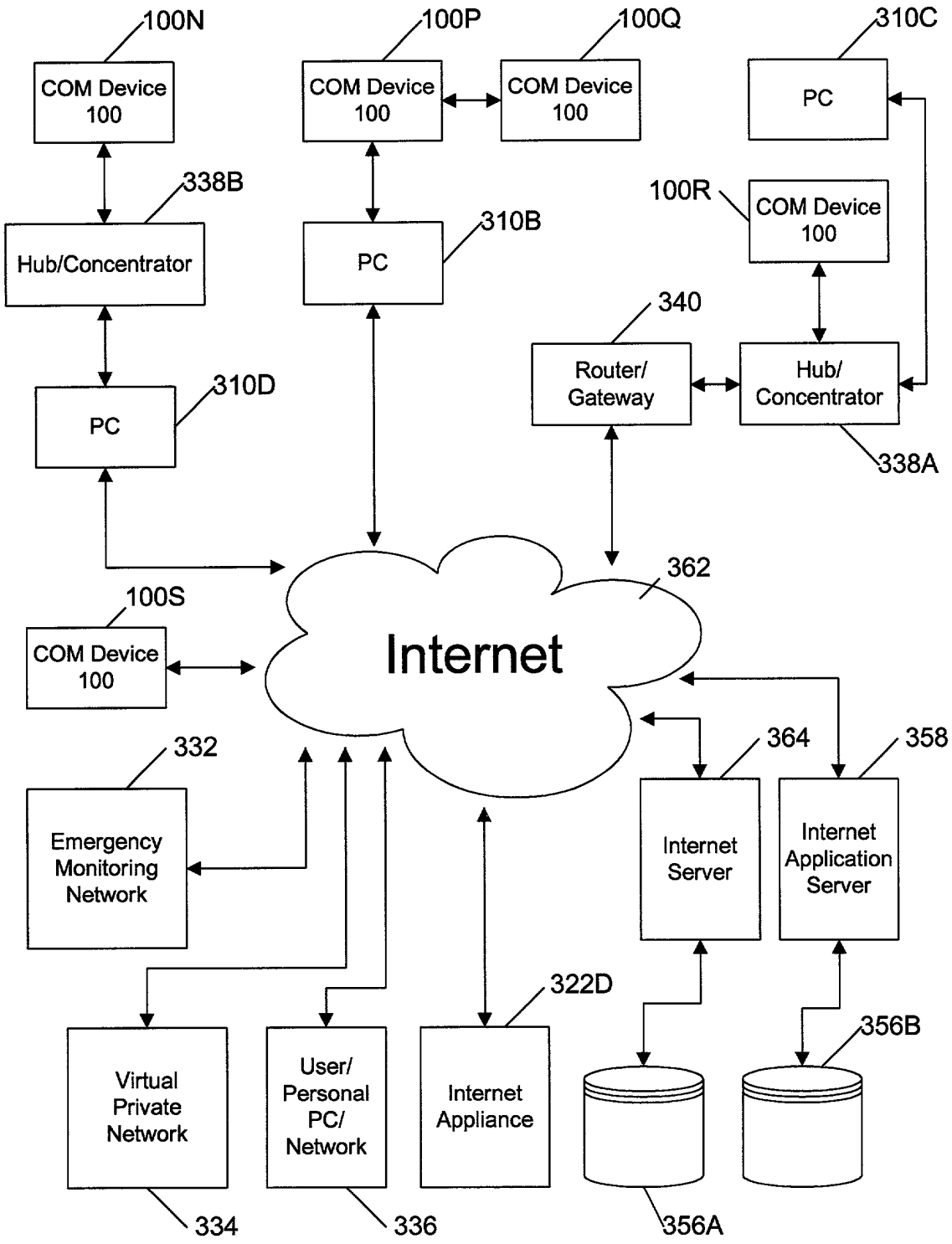
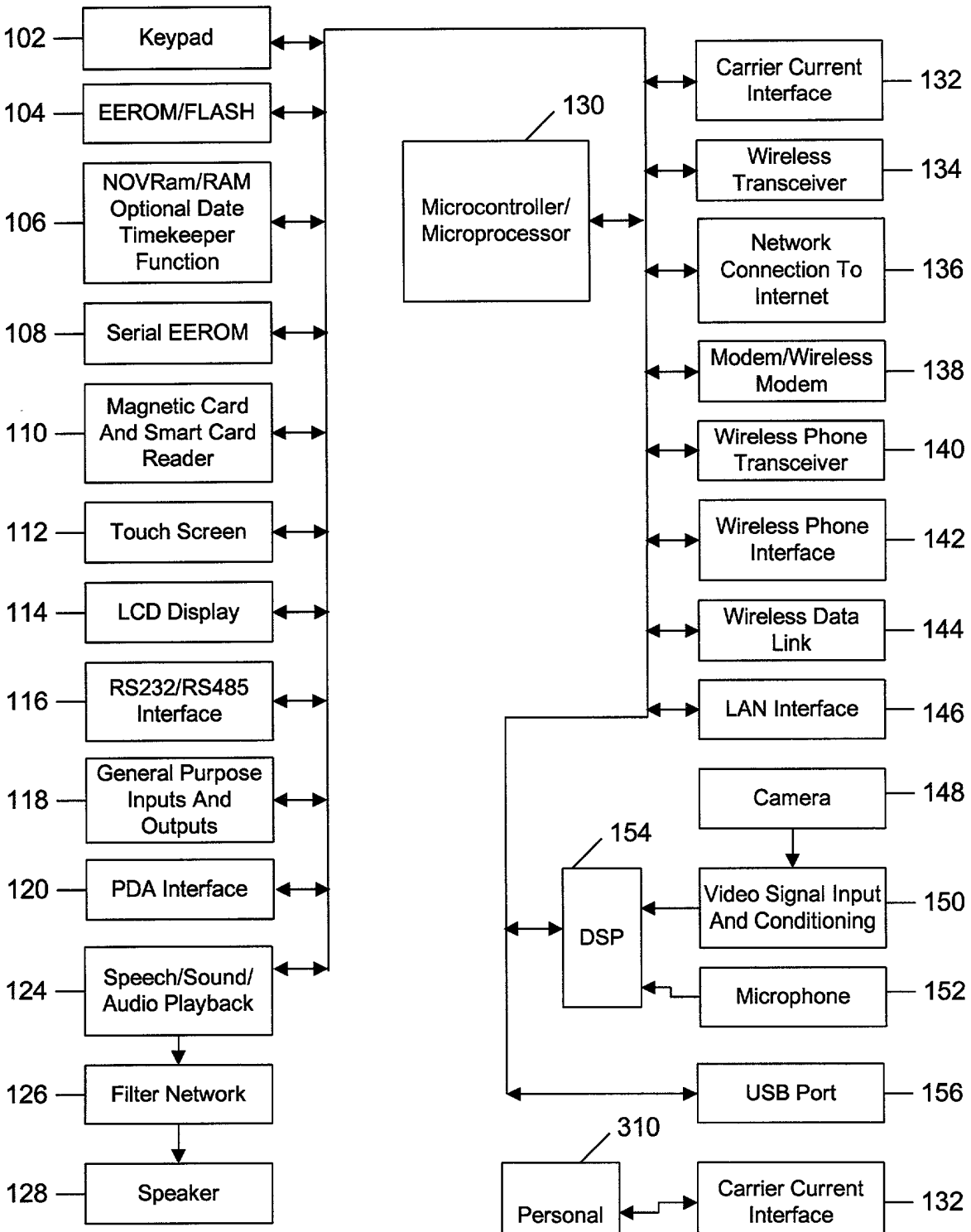
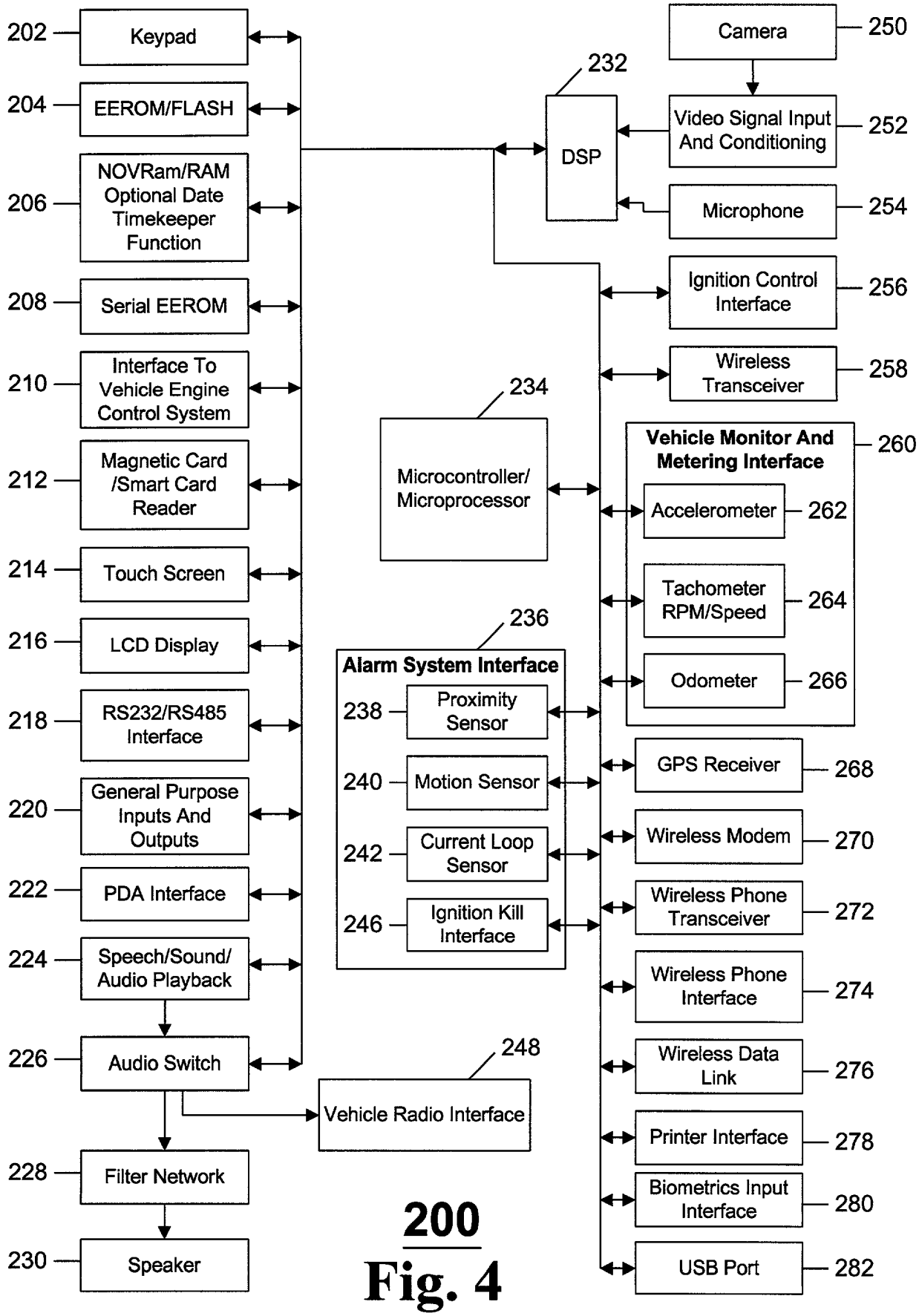

100N
COM Device 100
100P
COM Device 100
100Q
COM Device 100
310C
PC
338B
Hub/Concentrator
310B
PC
100R
COM Device 100
340
Router/ Gateway
Hub/ Concentrator
338A
310D
PC
362
Internet
100S
COM Device 100
332
Emergency Monitoring Network
364
358
Internet Server
Internet Application Server
322D
356B
Virtual Private Network
User/ Personal PC/ Network
Internet Appliance
334
336
356A

Fig. 2C


102
Keypad
104
EEROM/FLASH
106
NOVRam/RAM Optional Date Timekeeper Function
108
Serial EEROM
110
Magnetic Card And Smart Card Reader
112
Touch Screen
114
LCD Display
116
RS232/RS485 Interface
118
General Purpose Inputs And Outputs
120
PDA Interface
124
Speech/Sound/ Audio Playback
126
Filter Network
128
Speaker
130
Microcontroller/ Microprocessor
Carrier Current Interface
132
Wireless Transceiver
134
Network Connection To Internet
136
Modem/Wireless Modem
138
Wireless Phone Transceiver
140
Wireless Phone Interface
142
Wireless Data Link
144
LAN Interface
146
Camera
148
154
DSP
Video Signal Input And Conditioning
150
Microphone
152
USB Port
156
310
Personal Computer (PC)
Carrier Current Interface
132
LAN Interface
146

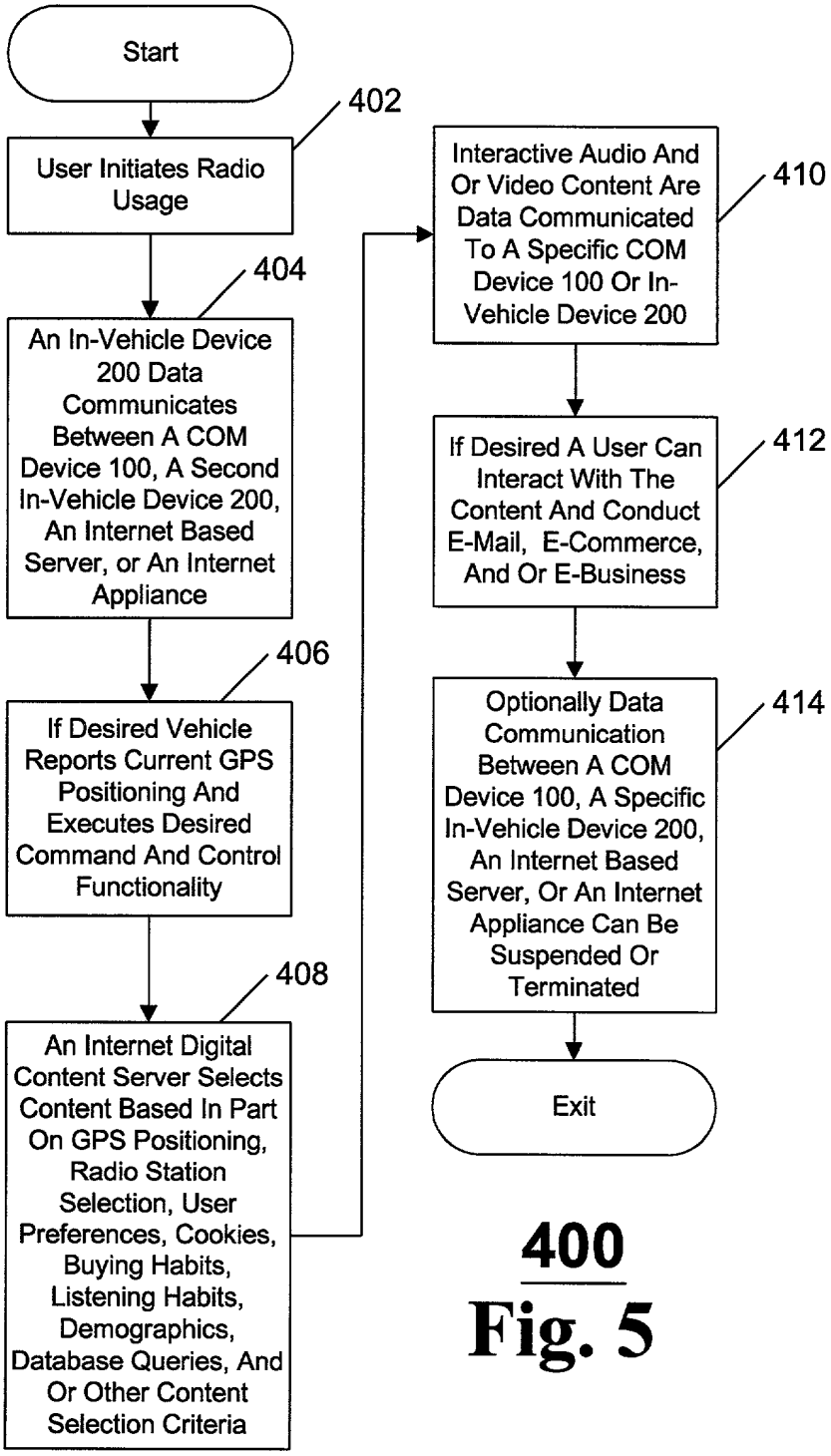
100

Fig. 3


202
Keypad
204
EEROM/FLASH
206
NOVRam/RAM Optional Date Timekeeper Function
208
Serial EEROM
210
Interface To Vehicle Engine Control System
212
Magnetic Card /Smart Card Reader
214
Touch Screen
216
LCD Display
218
RS232/RS485 Interface
220
General Purpose Inputs And Outputs
222
PDA Interface
224
Speech/Sound/ Audio Playback
226
Audio Switch
228
Filter Network
230
Speaker
232
DSP
234
Microcontroller/ Microprocessor
236
Alarm System Interface
238
Proximity Sensor
240
Motion Sensor
242
Current Loop Sensor
246
Ignition Kill Interface
248
Vehicle Radio Interface
250
Camera
252
Video Signal Input And Conditioning
254
Microphone
256
Ignition Control Interface
258
Wireless Transceiver
260
Vehicle Monitor And Metering Interface
262
Accelerometer
264
Tachometer RPM/Speed
266
Odometer
268
GPS Receiver
270
Wireless Modem
272
Wireless Phone Transceiver
274
Wireless Phone Interface
276
Wireless Data Link
278
Printer Interface
280
Biometrics Input Interface
282
USB Port

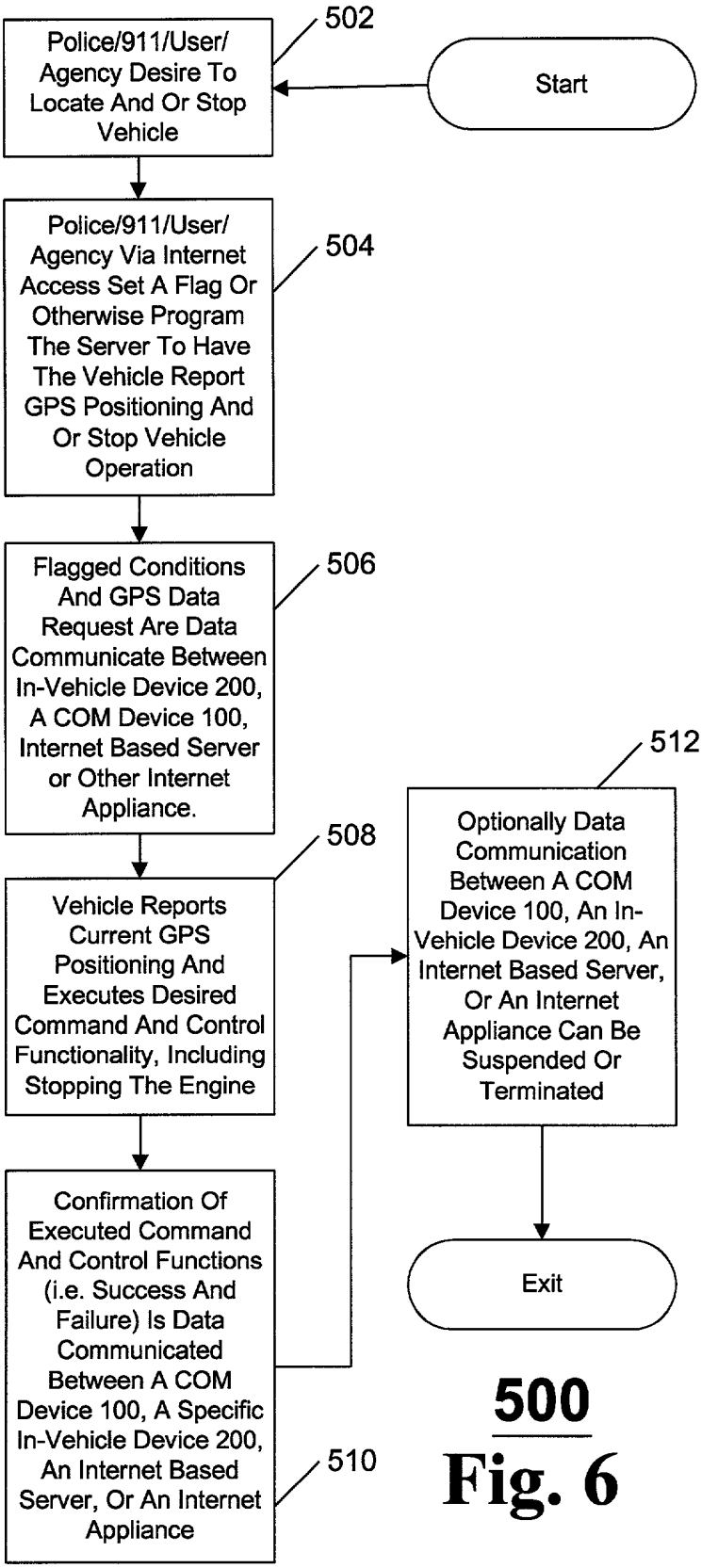
200

Fig. 4


Start
User Initiates Radio Usage
402
An In-Vehicle Device 200 Data Communicates Between A COM Device 100, A Second In-Vehicle Device 200, An Internet Based Server, or An Internet Appliance
404
If Desired Vehicle Reports Current GPS Positioning And Executes Desired Command And Control Functionality
406
An Internet Digital Content Server Selects Content Based In Part On GPS Positioning, Radio Station Selection, User Preferences, Cookies, Buying Habits, Listening Habits, Demographics, Database Queries, And Or Other Content Selection Criteria
408
Interactive Audio And Or Video Content Are Data Communicated To A Specific COM Device 100 Or In-Vehicle Device 200
410
If Desired A User Can Interact With The Content And Conduct E-Mail, E-Commerce, And Or E-Business
412
Optionally Data Communication Between A COM Device 100, A Specific In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Can Be Suspended Or Terminated
414
Exit

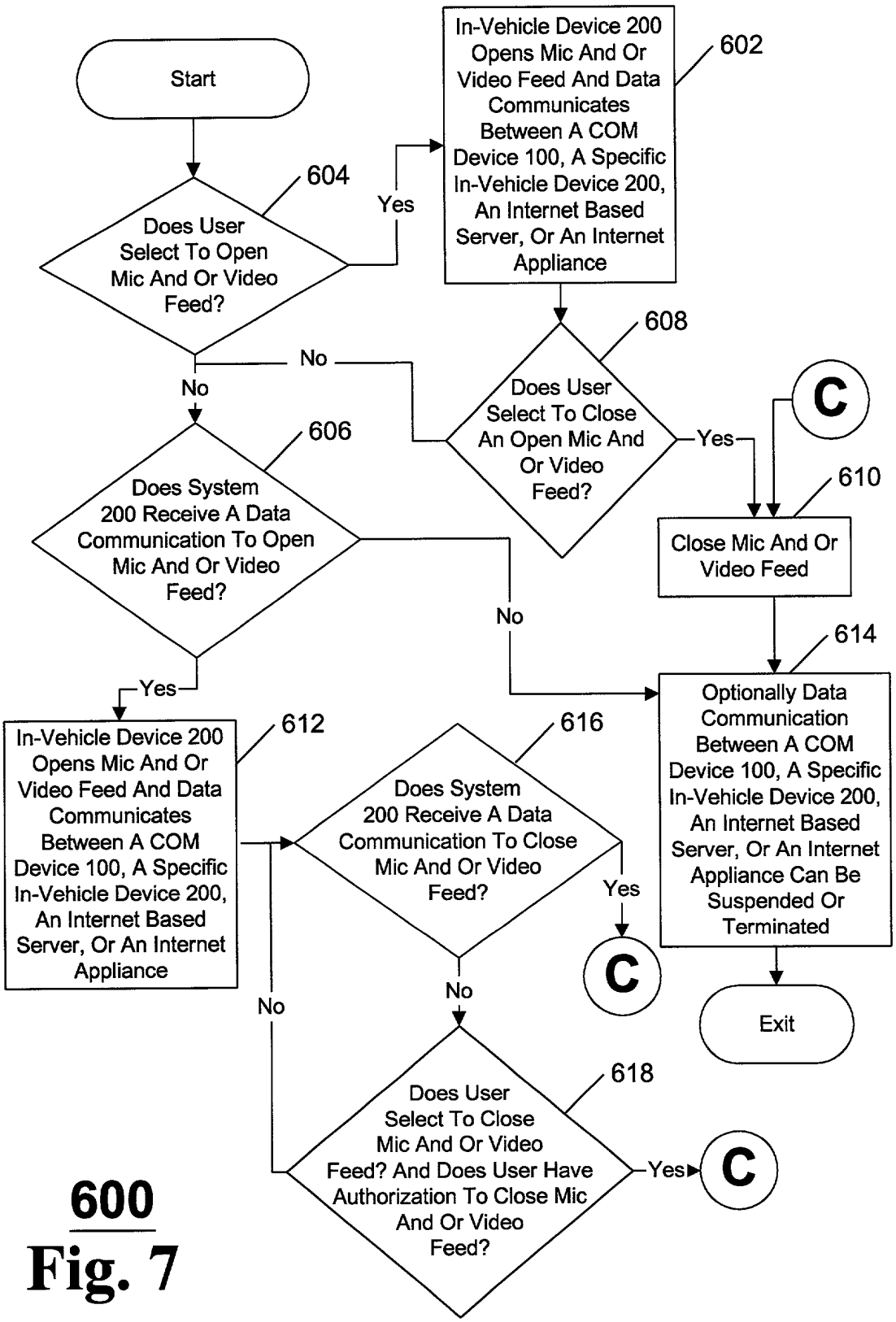
400

Fig. 5


Start
Police/911/User/ Agency Desire To Locate And Or Stop Vehicle
502
Police/911/User/ Agency Via Internet Access Set A Flag Or Otherwise Program The Server To Have The Vehicle Report GPS Positioning And Or Stop Vehicle Operation
504
Flagged Conditions And GPS Data Request Are Data Communicate Between In-Vehicle Device 200, A COM Device 100, Internet Based Server or Other Internet Appliance.
506
Vehicle Reports Current GPS Positioning And Executes Desired Command And Control Functionality, Including Stopping The Engine
508
Confirmation Of Executed Command And Control Functions (i.e. Success And Failure) Is Data Communicated Between A COM Device 100, A Specific In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance
510
Optionally Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Can Be Suspended Or Terminated
512
Exit

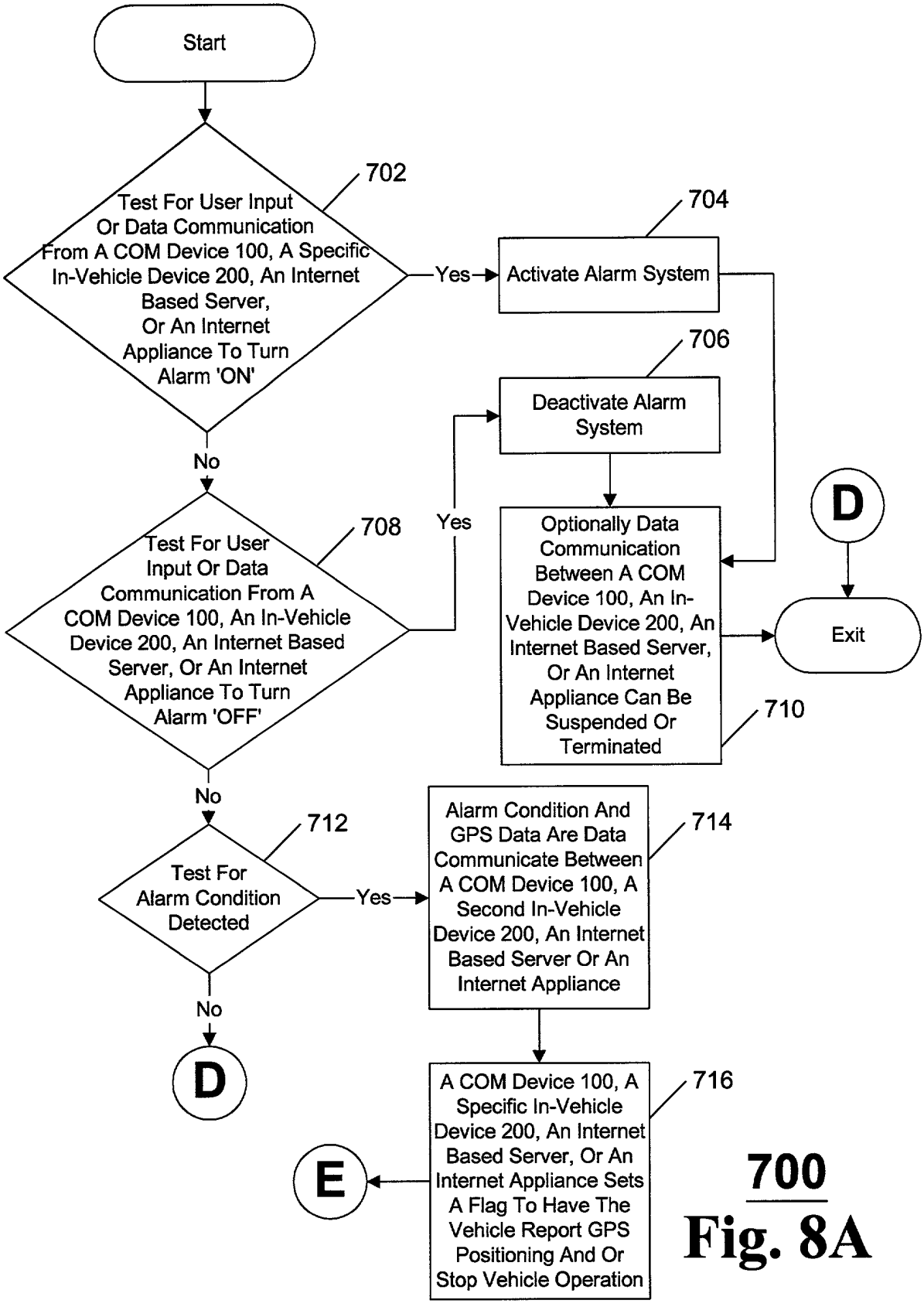
500

Fig. 6


Start
Does User Select To Open Mic And Or Video Feed?
604
Yes
In-Vehicle Device 200 Opens Mic And Or Video Feed And Data Communicates Between A COM Device 100, A Specific In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance
602
No
No
Does User Select To Close An Open Mic And Or Video Feed?
608
Yes
C
Does System 200 Receive A Data Communication To Open Mic And Or Video Feed?
606
610
Close Mic And Or Video Feed
No
614
Yes
Optionally Data Communication Between A COM Device 100, A Specific In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Can Be Suspended Or Terminated
In-Vehicle Device 200 Opens Mic And Or Video Feed And Data Communicates Between A COM Device 100, A Specific In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance
612
Does System 200 Receive A Data Communication To Close Mic And Or Video Feed?
616
Yes
C
No
No
Exit
Does User Select To Close Mic And Or Video Feed? And Does User Have Authorization To Close Mic And Or Video Feed?
618
Yes
C

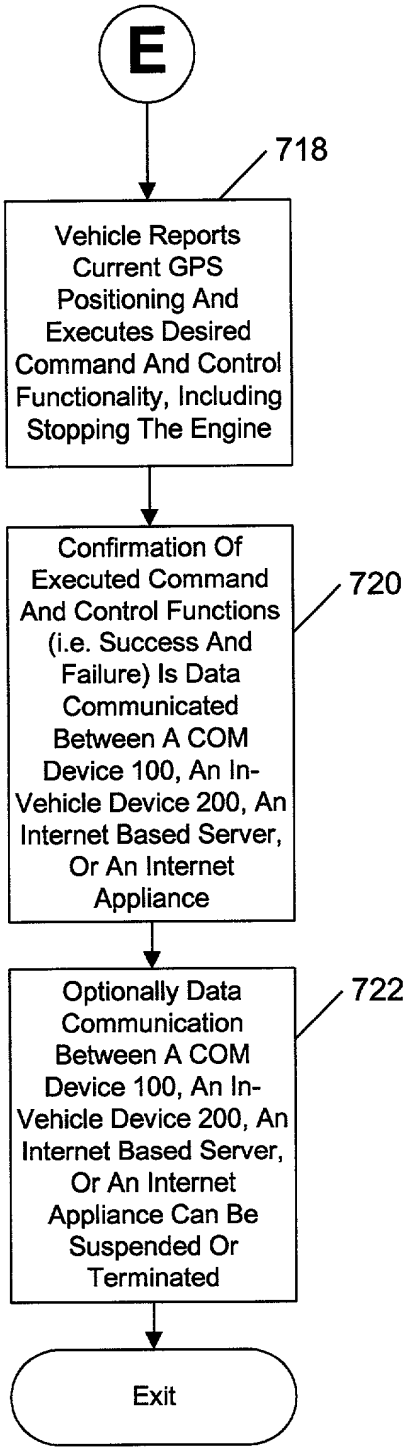
600

Fig. 7


Start
Test For User Input Or Data Communication From A COM Device 100, A Specific In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance To Turn Alarm 'ON'
702
Yes
Activate Alarm System
704
No
Deactivate Alarm System
706
Test For User Input Or Data Communication From A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance To Turn Alarm 'OFF'
708
Yes
Optionally Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Can Be Suspended Or Terminated
710
D
Exit
No
Test For Alarm Condition Detected
712
Yes
Alarm Condition And GPS Data Are Data Communicate Between A COM Device 100, A Second In-Vehicle Device 200, An Internet Based Server Or An Internet Appliance
714
No
D
A COM Device 100, A Specific In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Sets A Flag To Have The Vehicle Report GPS Positioning And Or Stop Vehicle Operation
716
E

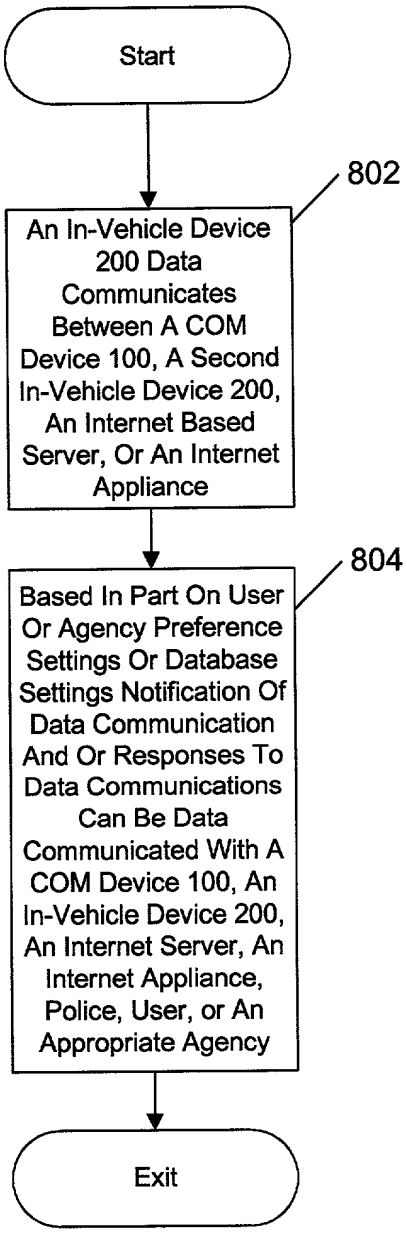
700

Fig. 8A


E
718
Vehicle Reports Current GPS Positioning And Executes Desired Command And Control Functionality, Including Stopping The Engine
720
Confirmation Of Executed Command And Control Functions (i.e. Success And Failure) Is Data Communicated Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance
722
Optionally Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Can Be Suspended Or Terminated
Exit
Start
724
A COM Device 100, A Second In-Vehicle Device 200, An Internet Based Server, or An Internet Appliance Data Communicates Between In-Vehicle Device 200 Issuing Alarm Condition
726
Based On User Or Agency Preference Settings Notification Of Alarm Conditions Can Be Data Communicated To A COM Device 100, An In-Vehicle Device 200, An Internet Server, An Internet Appliance, The Police, A User, or An Appropriate Agency
Exit

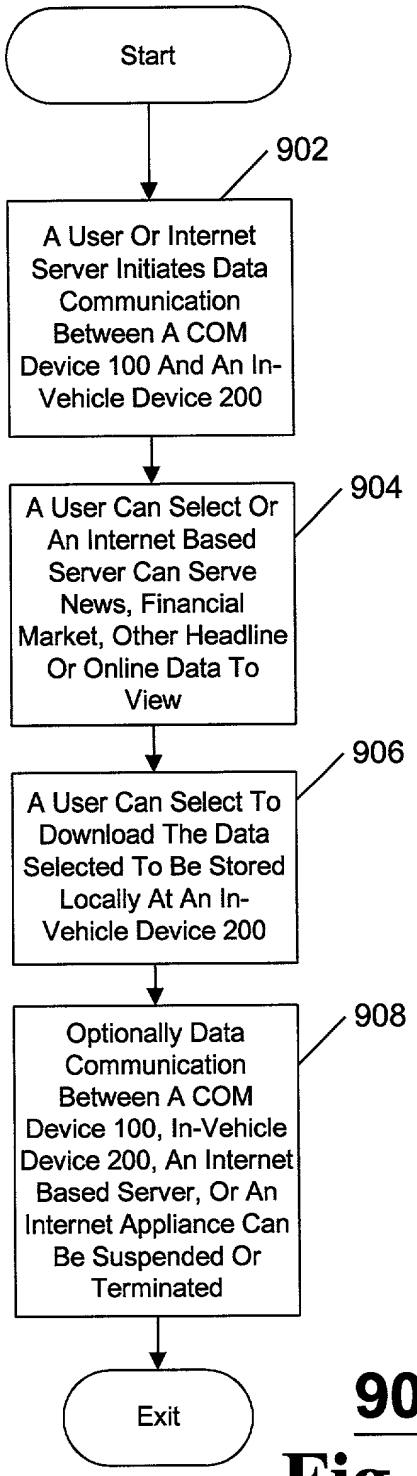
700

Fig. 8B



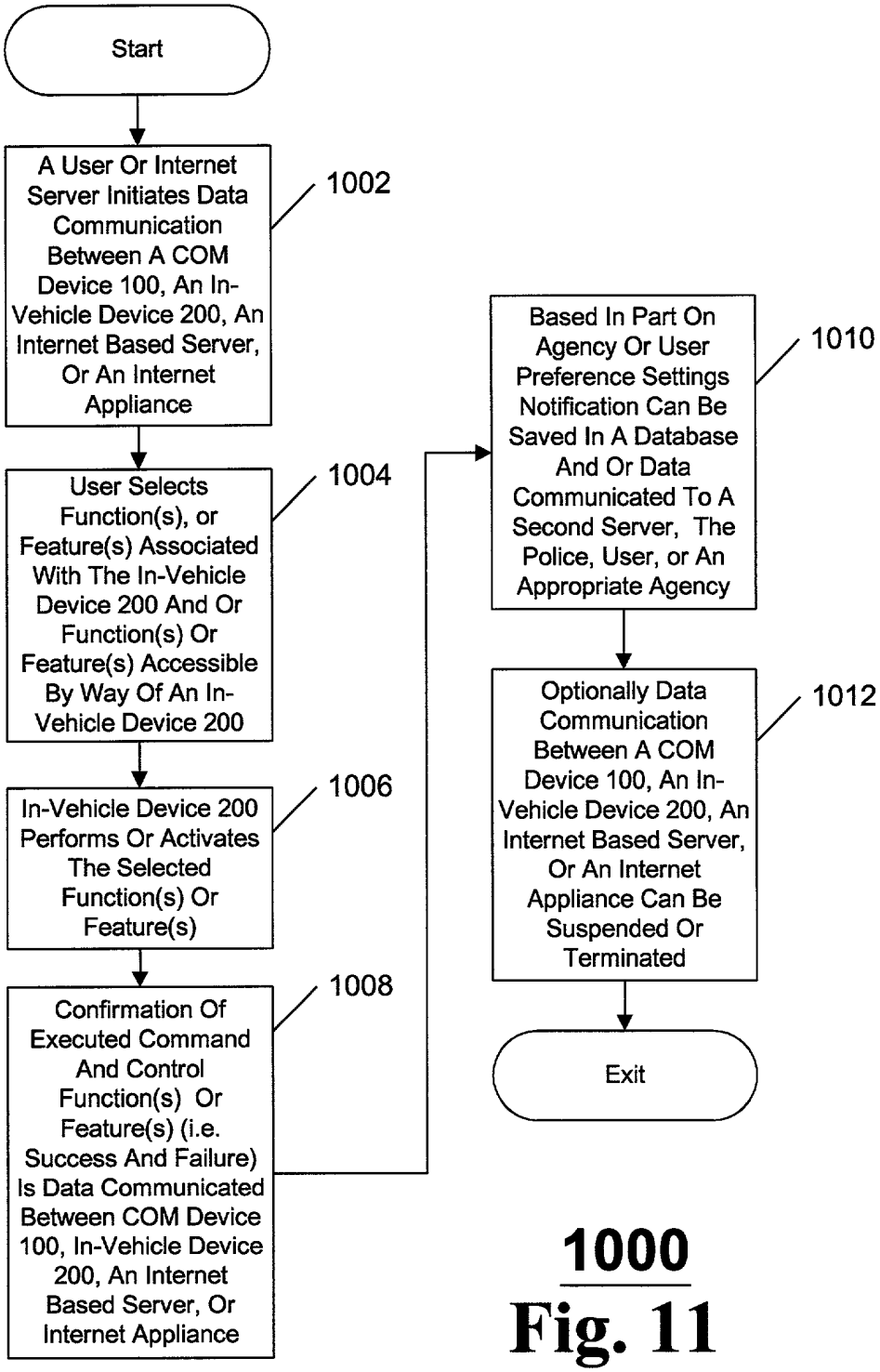
800

Fig. 9



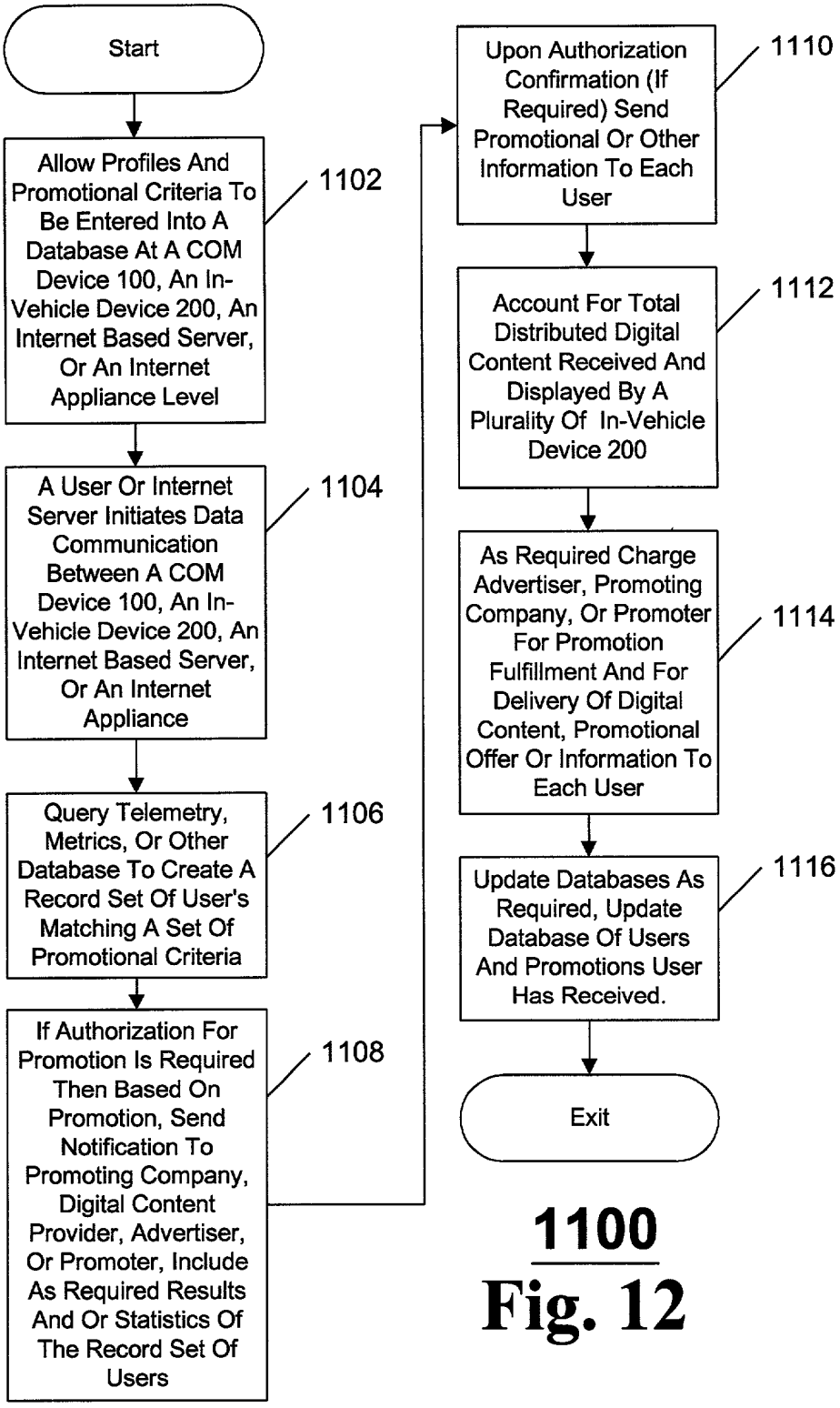
900

Fig. 10


Start
A User Or Internet Server Initiates Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance
1002
User Selects Function(s), or Feature(s) Associated With The In-Vehicle Device 200 And Or Function(s) Or Feature(s) Accessible By Way Of An In-Vehicle Device 200
1004
In-Vehicle Device 200 Performs Or Activates The Selected Function(s) Or Feature(s)
1006
Confirmation Of Executed Command And Control Function(s) Or Feature(s) (i.e. Success And Failure) Is Data Communicated Between COM Device 100, In-Vehicle Device 200, An Internet Based Server, Or Internet Appliance
1008
Based In Part On Agency Or User Preference Settings Notification Can Be Saved In A Database And Or Data Communicated To A Second Server, The Police, User, or An Appropriate Agency
1010
Optionally Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Can Be Suspended Or Terminated
1012
Exit

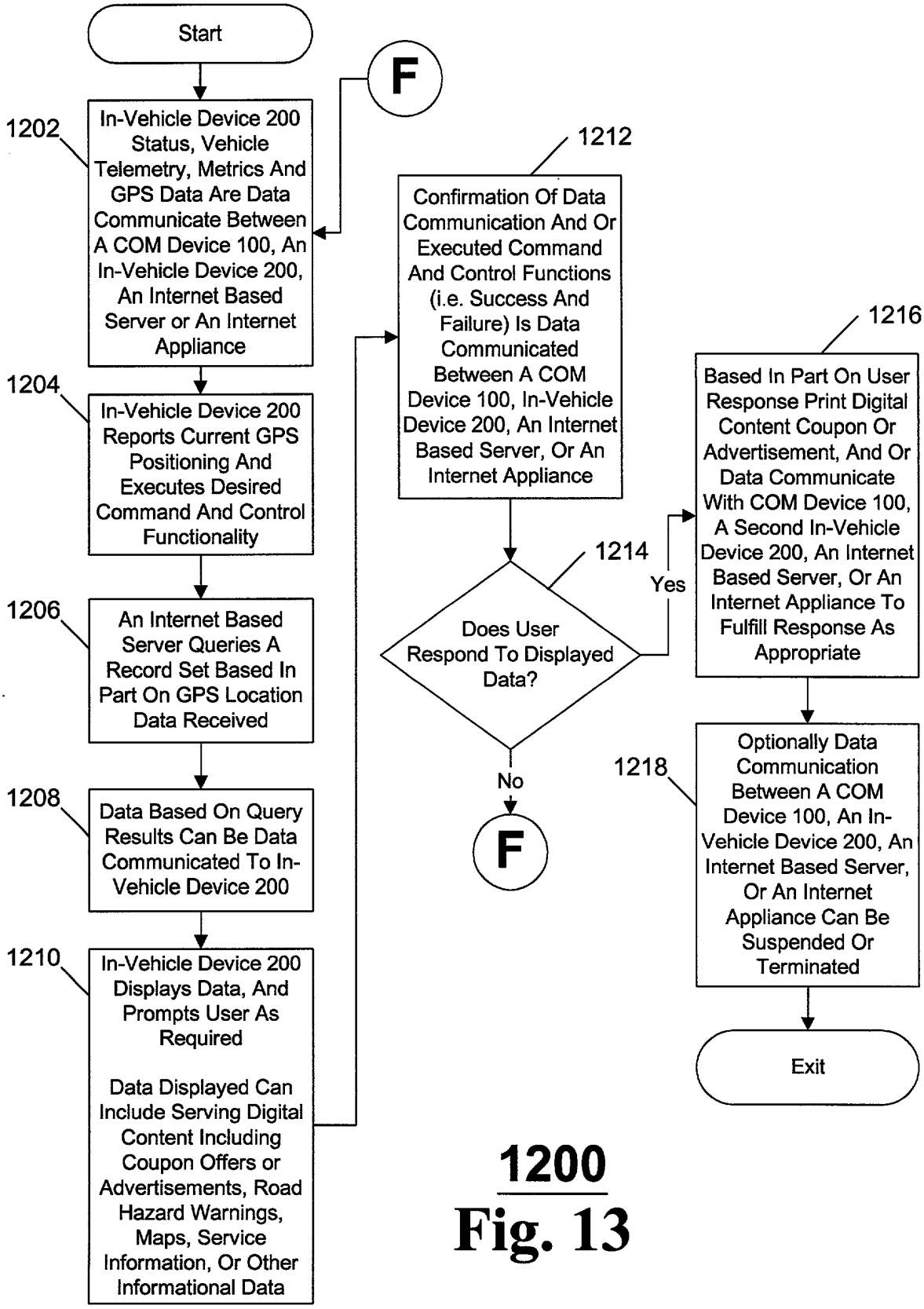
1000

Fig. 11


Start
Allow Profiles And Promotional Criteria To Be Entered Into A Database At A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Level
1102
A User Or Internet Server Initiates Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance
1104
Query Telemetry, Metrics, Or Other Database To Create A Record Set Of User's Matching A Set Of Promotional Criteria
1106
If Authorization For Promotion Is Required Then Based On Promotion, Send Notification To Promoting Company, Digital Content Provider, Advertiser, Or Promoter, Include As Required Results And Or Statistics Of The Record Set Of Users
1108
Upon Authorization Confirmation (If Required) Send Promotional Or Other Information To Each User
1110
Account For Total Distributed Digital Content Received And Displayed By A Plurality Of In-Vehicle Device 200
1112
As Required Charge Advertiser, Promoting Company, Or Promoter For Promotion Fulfillment And For Delivery Of Digital Content, Promotional Offer Or Information To Each User
1114
Update Databases As Required, Update Database Of Users And Promotions User Has Received.
1116
Exit

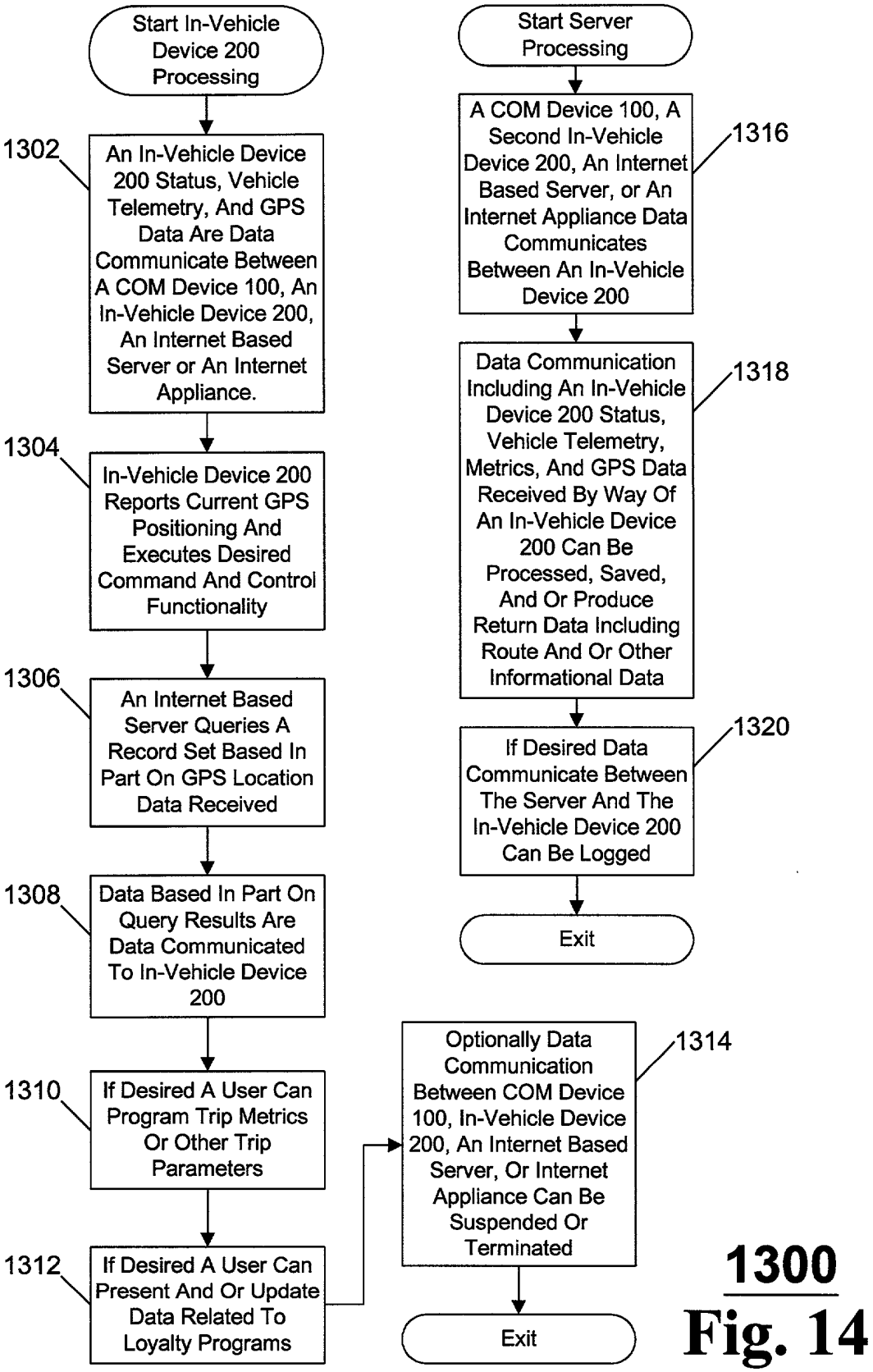
1100

Fig. 12


Start
F
1202
In-Vehicle Device 200 Status, Vehicle Telemetry, Metrics And GPS Data Are Data Communicate Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server or An Internet Appliance
1204
In-Vehicle Device 200 Reports Current GPS Positioning And Executes Desired Command And Control Functionality
1206
An Internet Based Server Queries A Record Set Based In Part On GPS Location Data Received
1208
Data Based On Query Results Can Be Data Communicated To In-Vehicle Device 200
1210
In-Vehicle Device 200 Displays Data, And Prompts User As Required
Data Displayed Can Include Serving Digital Content Including Coupon Offers or Advertisements, Road Hazard Warnings, Maps, Service Information, Or Other Informational Data
1212
Confirmation Of Data Communication And Or Executed Command And Control Functions (i.e. Success And Failure) Is Data Communicated Between A COM Device 100, In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance
1214
Does User Respond To Displayed Data?
Yes
No
F
1216
Based In Part On User Response Print Digital Content Coupon Or Advertisement, And Or Data Communicate With COM Device 100, A Second In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance To Fulfill Response As Appropriate
1218
Optionally Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Can Be Suspended Or Terminated
Exit

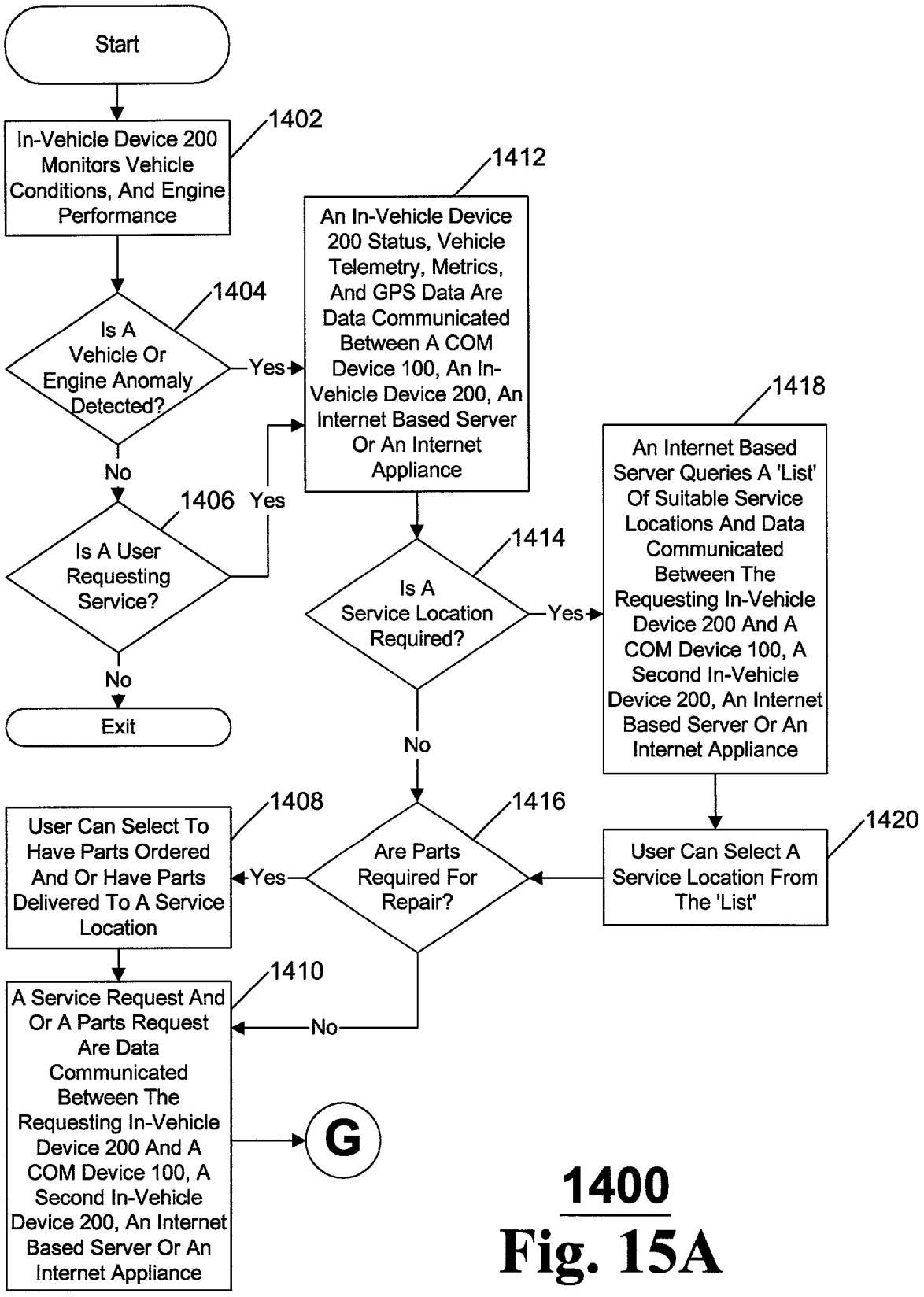
1200

Fig. 13


Start In-Vehicle Device 200 Processing
1302
An In-Vehicle Device 200 Status, Vehicle Telemetry, And GPS Data Are Data Communicate Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server or An Internet Appliance.
1304
In-Vehicle Device 200 Reports Current GPS Positioning And Executes Desired Command And Control Functionality
1306
An Internet Based Server Queries A Record Set Based In Part On GPS Location Data Received
1308
Data Based In Part On Query Results Are Data Communicated To In-Vehicle Device 200
1310
If Desired A User Can Program Trip Metrics Or Other Trip Parameters
1312
If Desired A User Can Present And Or Update Data Related To Loyalty Programs
Start Server Processing
A COM Device 100, A Second In-Vehicle Device 200, An Internet Based Server, or An Internet Appliance Data Communicates Between An In-Vehicle Device 200
1316
Data Communication Including An In-Vehicle Device 200 Status, Vehicle Telemetry, Metrics, And GPS Data Received By Way Of An In-Vehicle Device 200 Can Be Processed, Saved, And Or Produce Return Data Including Route And Or Other Informational Data
1318
If Desired Data Communicate Between The Server And The In-Vehicle Device 200 Can Be Logged
1320
Exit
Optionally Data Communication Between COM Device 100, In-Vehicle Device 200, An Internet Based Server, Or Internet Appliance Can Be Suspended Or Terminated
1314
Exit

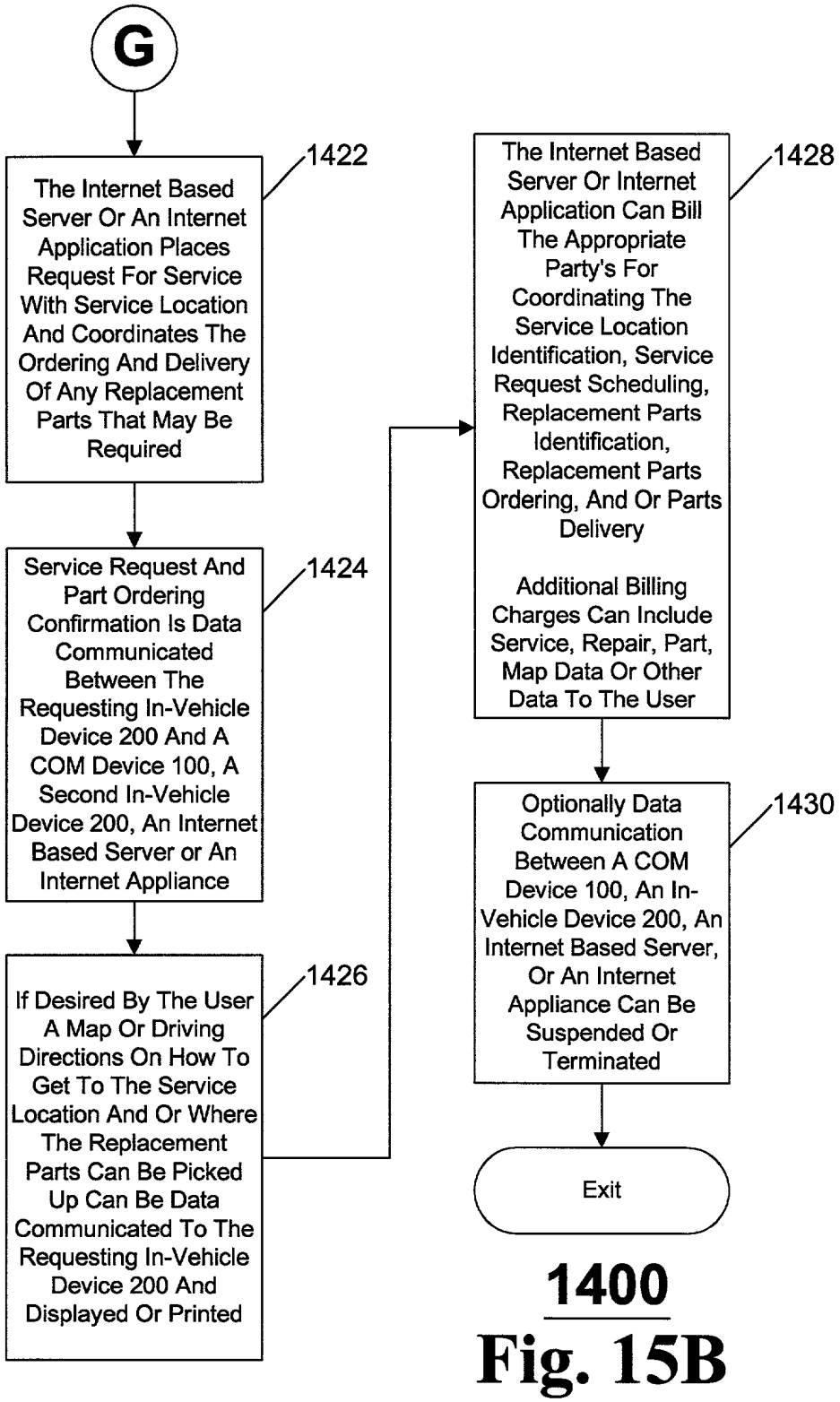
1300

Fig. 14


Start
In-Vehicle Device 200 Monitors Vehicle Conditions, And Engine Performance
1402
Is A Vehicle Or Engine Anomaly Detected?
1404
Yes
No
Is A User Requesting Service?
1406
Yes
No
Exit
An In-Vehicle Device 200 Status, Vehicle Telemetry, Metrics, And GPS Data Are Data Communicated Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server Or An Internet Appliance
1412
Is A Service Location Required?
1414
Yes
No
An Internet Based Server Queries A 'List' Of Suitable Service Locations And Data Communicated Between The Requesting In-Vehicle Device 200 And A COM Device 100, A Second In-Vehicle Device 200, An Internet Based Server Or An Internet Appliance
1418
User Can Select A Service Location From The 'List'
1420
Are Parts Required For Repair?
1416
Yes
No
User Can Select To Have Parts Ordered And Or Have Parts Delivered To A Service Location
1408
A Service Request And Or A Parts Request Are Data Communicated Between The Requesting In-Vehicle Device 200 And A COM Device 100, A Second In-Vehicle Device 200, An Internet Based Server Or An Internet Appliance
1410
G

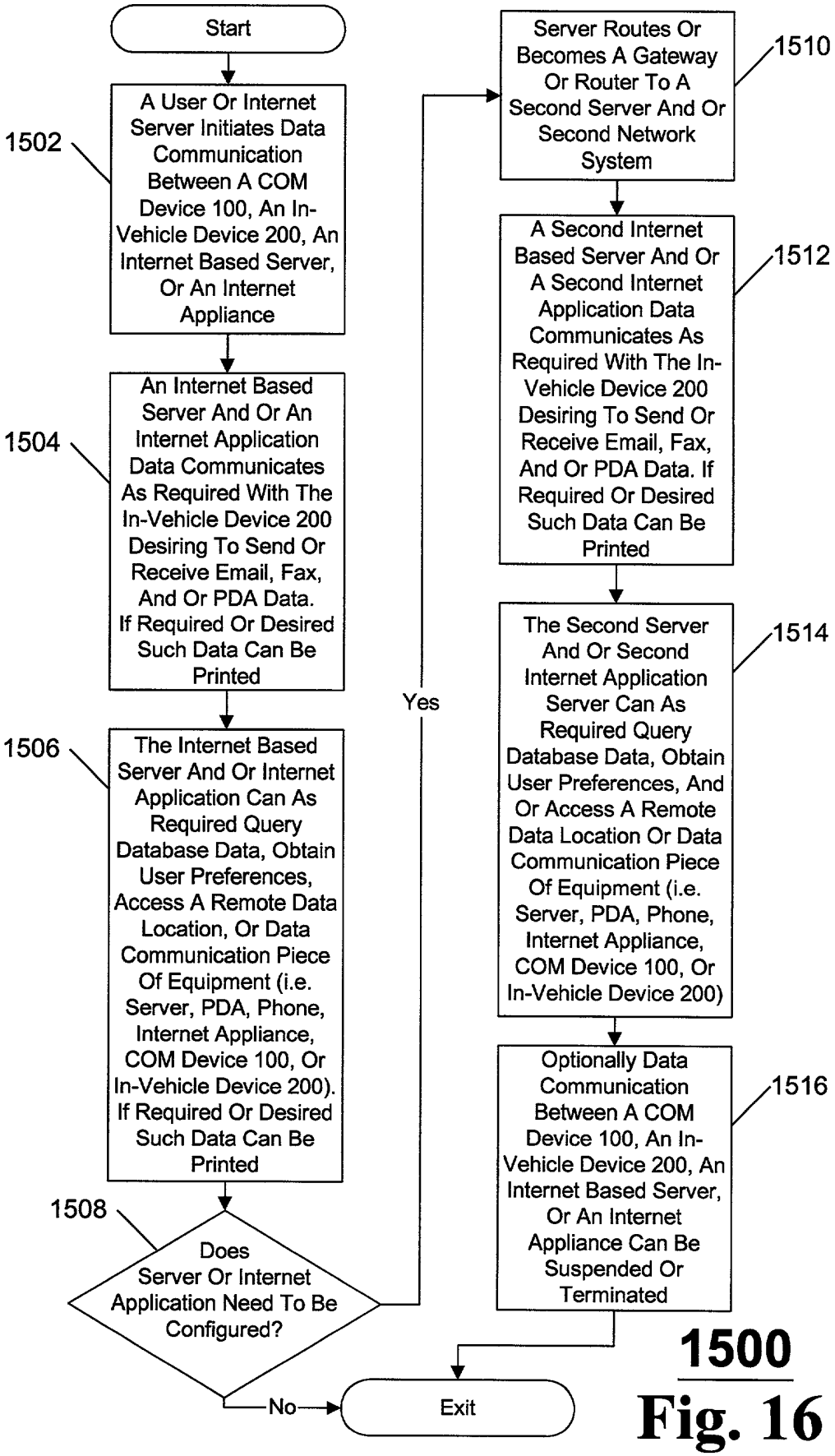
1400

Fig. 15A


G
The Internet Based Server Or An Internet Application Places Request For Service With Service Location And Coordinates The Ordering And Delivery Of Any Replacement Parts That May Be Required
1422
Service Request And Part Ordering Confirmation Is Data Communicated Between The Requesting In-Vehicle Device 200 And A COM Device 100, A Second In-Vehicle Device 200, An Internet Based Server or An Internet Appliance
1424
If Desired By The User A Map Or Driving Directions On How To Get To The Service Location And Or Where The Replacement Parts Can Be Picked Up Can Be Data Communicated To The Requesting In-Vehicle Device 200 And Displayed Or Printed
1426
The Internet Based Server Or Internet Application Can Bill The Appropriate Party's For Coordinating The Service Location Identification, Service Request Scheduling, Replacement Parts Identification, Replacement Parts Ordering, And Or Parts Delivery
Additional Billing Charges Can Include Service, Repair, Part, Map Data Or Other Data To The User
1428
Optionally Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Can Be Suspended Or Terminated
1430
Exit

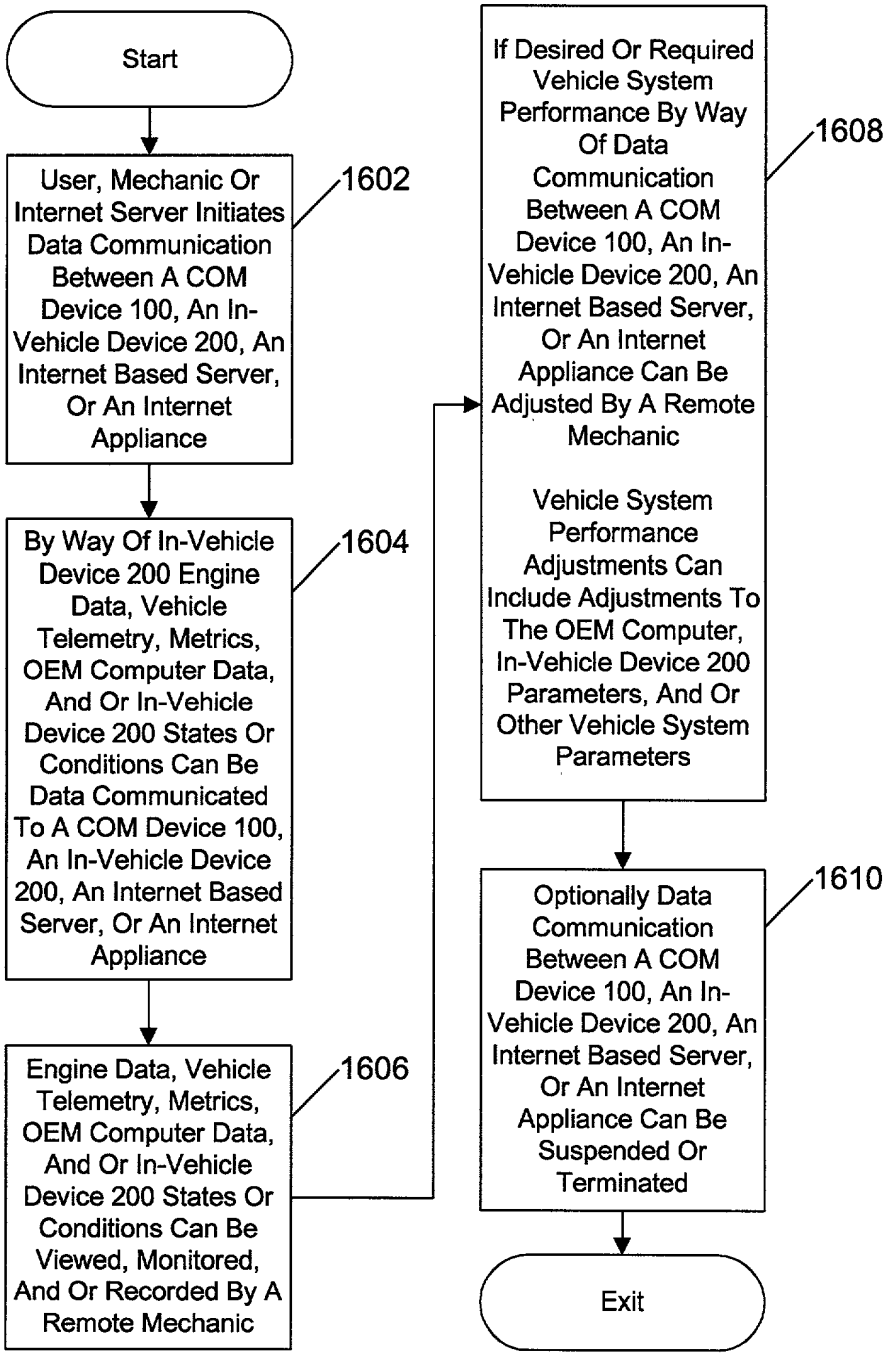
1400

Fig. 15B


Start
A User Or Internet Server Initiates Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance
1502
An Internet Based Server And Or An Internet Application Data Communicates As Required With The In-Vehicle Device 200 Desiring To Send Or Receive Email, Fax, And Or PDA Data. If Required Or Desired Such Data Can Be Printed
1504
The Internet Based Server And Or Internet Application Can As Required Query Database Data, Obtain User Preferences, Access A Remote Data Location, Or Data Communication Piece Of Equipment (i.e. Server, PDA, Phone, Internet Appliance, COM Device 100, Or In-Vehicle Device 200). If Required Or Desired Such Data Can Be Printed
1506
Does Server Or Internet Application Need To Be Configured?
1508
Yes
No
Server Routes Or Becomes A Gateway Or Router To A Second Server And Or Second Network System
1510
A Second Internet Based Server And Or A Second Internet Application Data Communicates As Required With The In-Vehicle Device 200 Desiring To Send Or Receive Email, Fax, And Or PDA Data. If Required Or Desired Such Data Can Be Printed
1512
The Second Server And Or Second Internet Application Server Can As Required Query Database Data, Obtain User Preferences, And Or Access A Remote Data Location Or Data Communication Piece Of Equipment (i.e. Server, PDA, Phone, Internet Appliance, COM Device 100, Or In-Vehicle Device 200)
1514
Optionally Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Can Be Suspended Or Terminated
1516
Exit

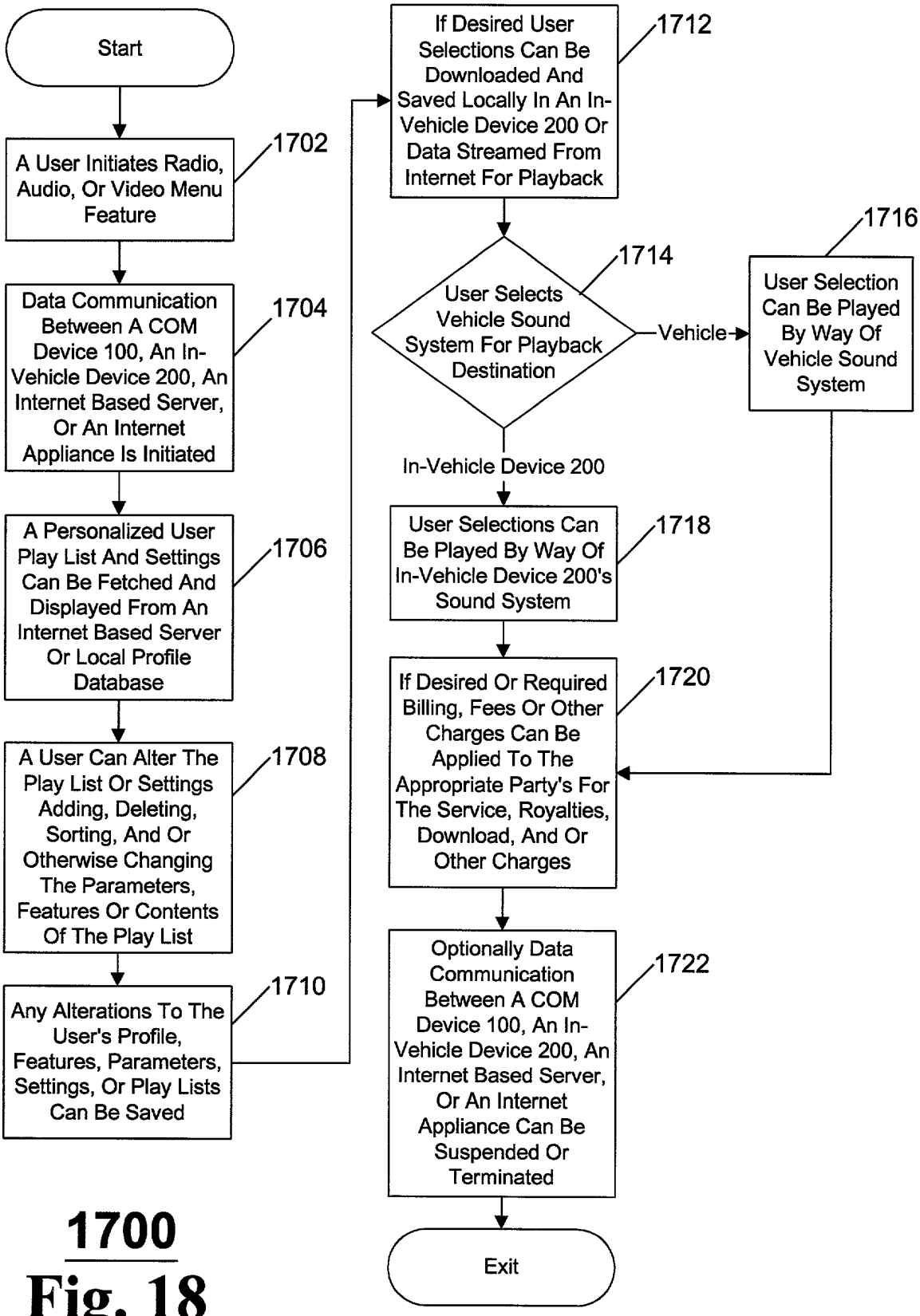
1500

Fig. 16


Start
User, Mechanic Or Internet Server Initiates Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance
1602
By Way Of In-Vehicle Device 200 Engine Data, Vehicle Telemetry, Metrics, OEM Computer Data, And Or In-Vehicle Device 200 States Or Conditions Can Be Data Communicated To A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance
1604
Engine Data, Vehicle Telemetry, Metrics, OEM Computer Data, And Or In-Vehicle Device 200 States Or Conditions Can Be Viewed, Monitored, And Or Recorded By A Remote Mechanic
1606
If Desired Or Required Vehicle System Performance By Way Of Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Can Be Adjusted By A Remote Mechanic
Vehicle System Performance Adjustments Can Include Adjustments To The OEM Computer, In-Vehicle Device 200 Parameters, And Or Other Vehicle System Parameters
1608
Optionally Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Can Be Suspended Or Terminated
1610
Exit

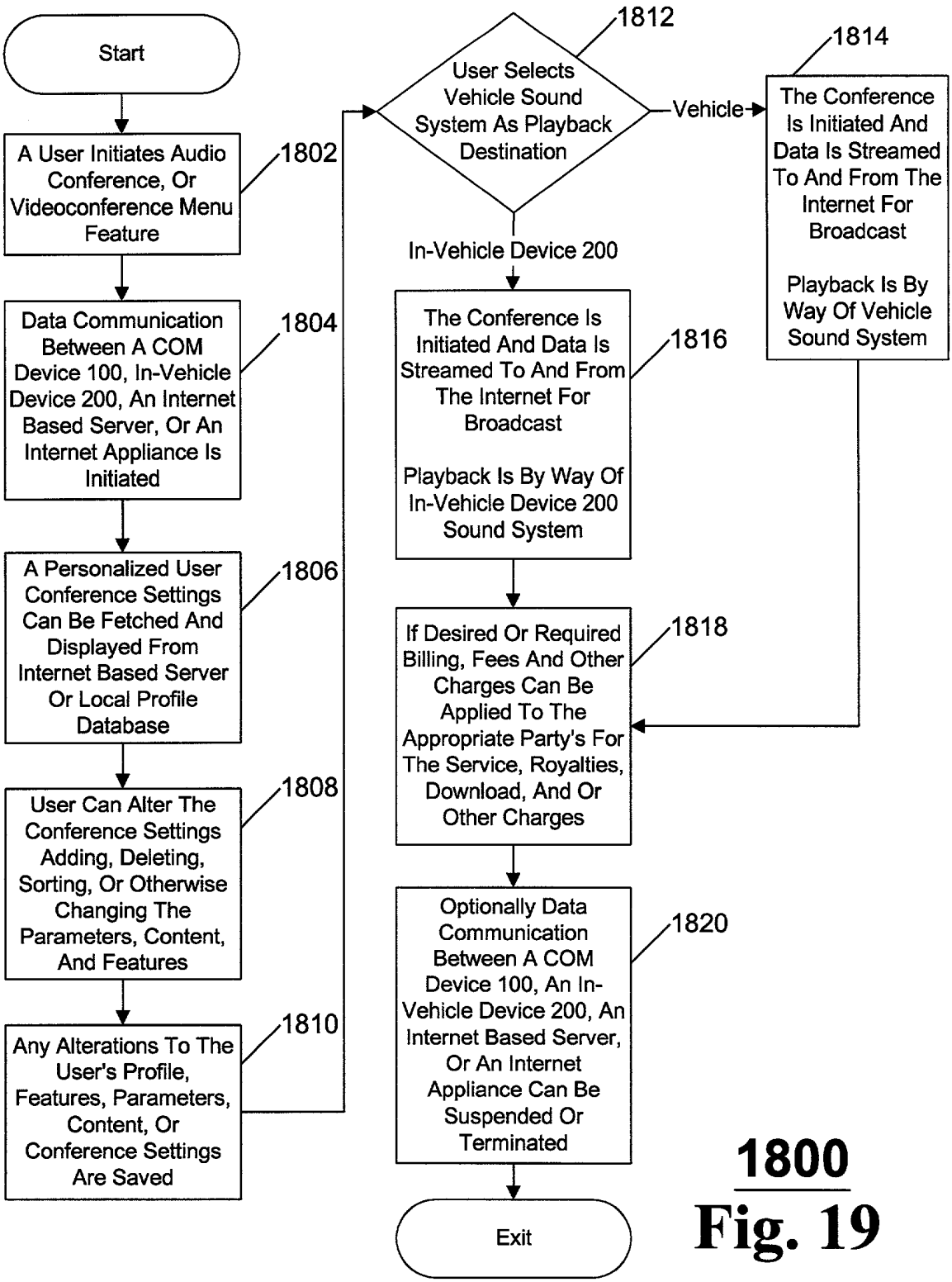
1600

Fig. 17


Start
A User Initiates Radio, Audio, Or Video Menu Feature
1702
Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Is Initiated
1704
A Personalized User Play List And Settings Can Be Fetched And Displayed From An Internet Based Server Or Local Profile Database
1706
A User Can Alter The Play List Or Settings Adding, Deleting, Sorting, And Or Otherwise Changing The Parameters, Features Or Contents Of The Play List
1708
Any Alterations To The User's Profile, Features, Parameters, Settings, Or Play Lists Can Be Saved
1710
If Desired User Selections Can Be Downloaded And Saved Locally In An In-Vehicle Device 200 Or Data Streamed From Internet For Playback
1712
User Selects Vehicle Sound System For Playback Destination
1714
Vehicle
User Selection Can Be Played By Way Of Vehicle Sound System
1716
In-Vehicle Device 200
User Selections Can Be Played By Way Of In-Vehicle Device 200's Sound System
1718
If Desired Or Required Billing, Fees Or Other Charges Can Be Applied To The Appropriate Party's For The Service, Royalties, Download, And Or Other Charges
1720
Optionally Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Can Be Suspended Or Terminated
1722
Exit

1700

Fig. 18


Start
A User Initiates Audio Conference, Or Videoconference Menu Feature
1802
Data Communication Between A COM Device 100, In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Is Initiated
1804
A Personalized User Conference Settings Can Be Fetched And Displayed From Internet Based Server Or Local Profile Database
1806
User Can Alter The Conference Settings Adding, Deleting, Sorting, Or Otherwise Changing The Parameters, Content, And Features
1808
Any Alterations To The User's Profile, Features, Parameters, Content, Or Conference Settings Are Saved
1810
User Selects Vehicle Sound System As Playback Destination
1812
Vehicle
1814
The Conference Is Initiated And Data Is Streamed To And From The Internet For Broadcast
Playback Is By Way Of Vehicle Sound System
In-Vehicle Device 200
The Conference Is Initiated And Data Is Streamed To And From The Internet For Broadcast
Playback Is By Way Of In-Vehicle Device 200 Sound System
1816
If Desired Or Required Billing, Fees And Other Charges Can Be Applied To The Appropriate Party's For The Service, Royalties, Download, And Or Other Charges
1818
Optionally Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Can Be Suspended Or Terminated
1820
Exit

1800

Fig. 19

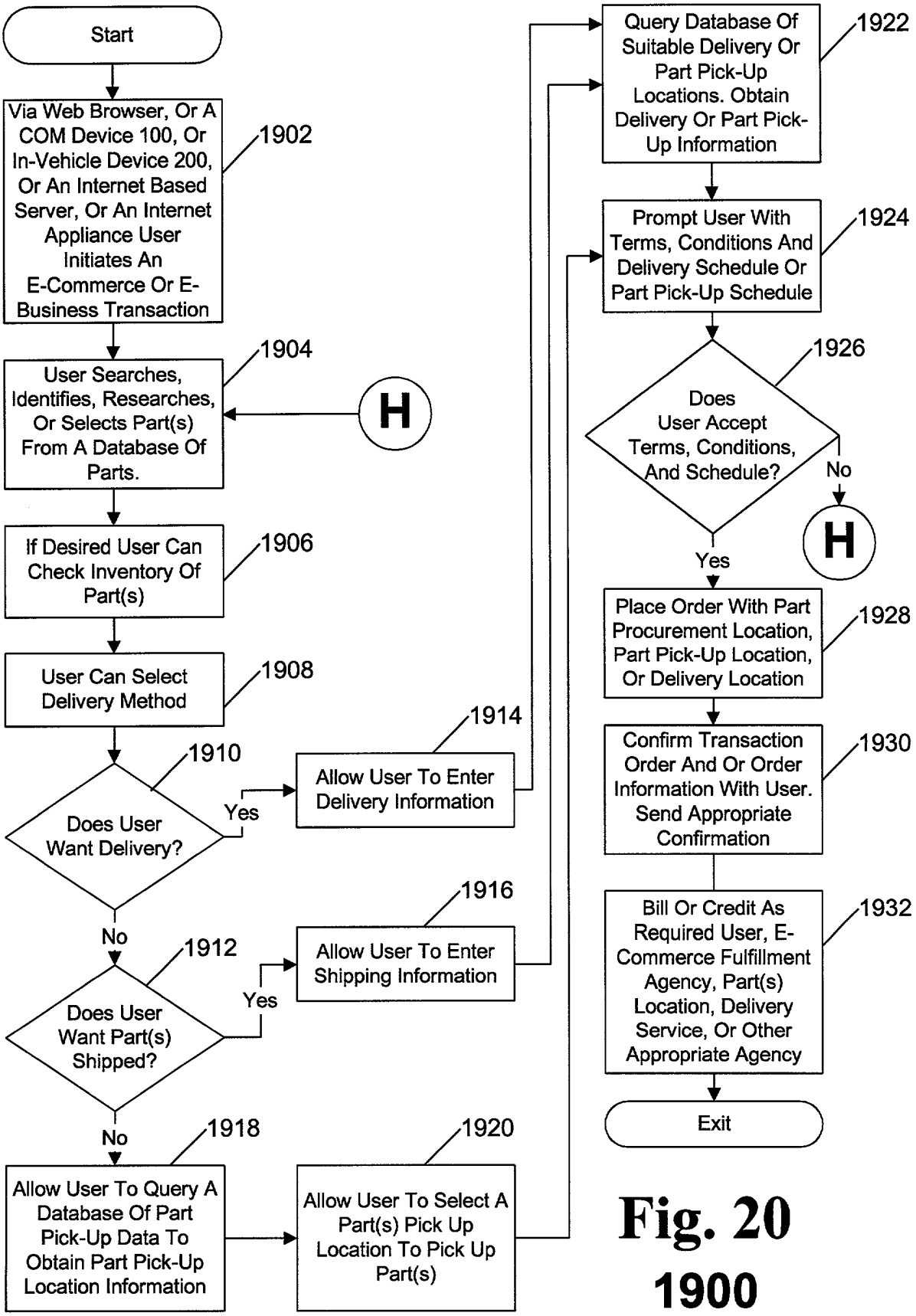
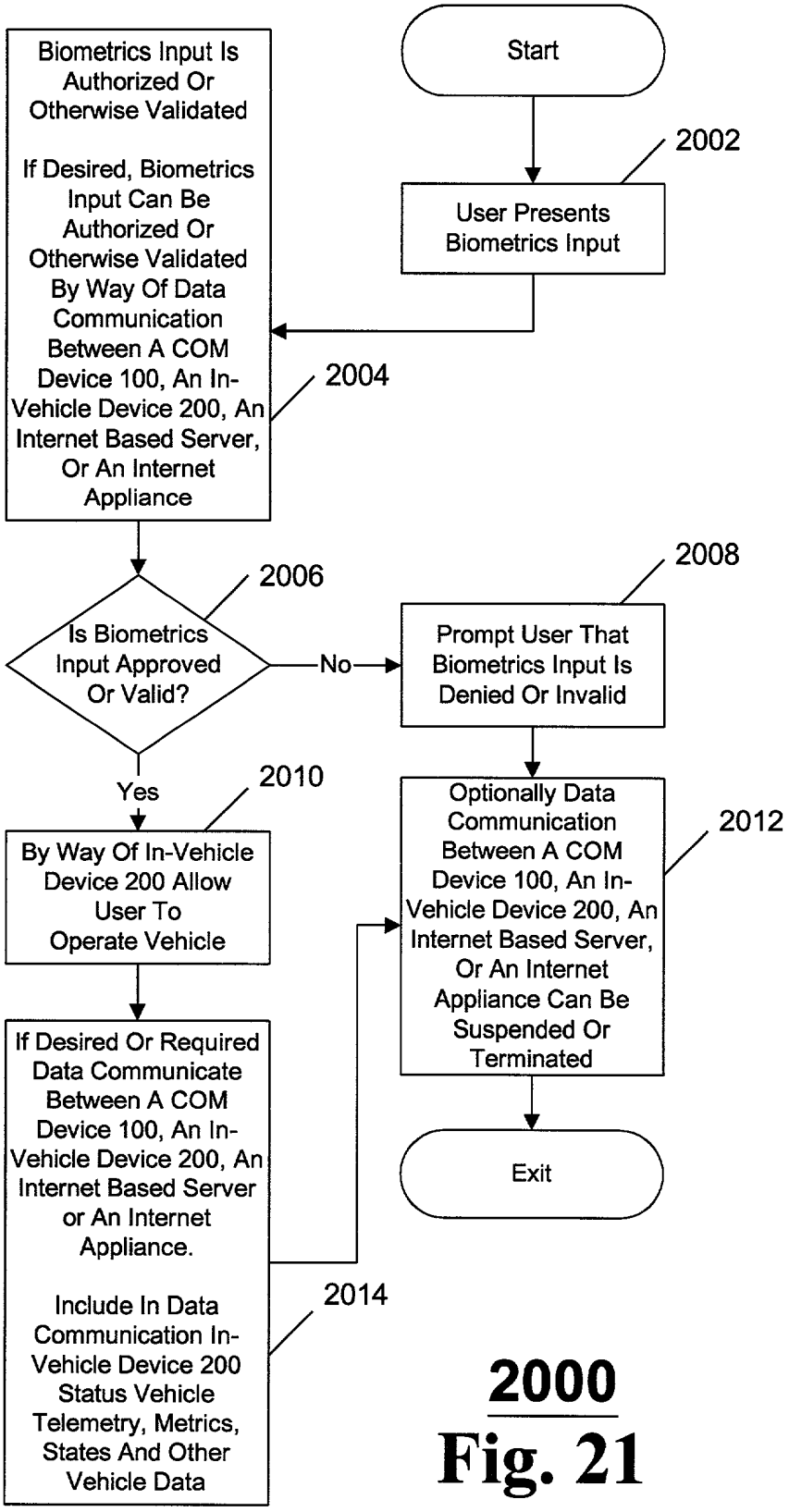

Start
Via Web Browser, Or A COM Device 100, Or In-Vehicle Device 200, Or An Internet Based Server, Or An Internet Appliance User Initiates An E-Commerce Or E-Business Transaction
1902
User Searches, Identifies, Researches, Or Selects Part(s) From A Database Of Parts.
1904
H
If Desired User Can Check Inventory Of Part(s)
1906
User Can Select Delivery Method
1908
Does User Want Delivery?
1910
Yes
Allow User To Enter Delivery Information
1914
No
Does User Want Part(s) Shipped?
1912
Yes
Allow User To Enter Shipping Information
1916
No
Allow User To Query A Database Of Part Pick-Up Data To Obtain Part Pick-Up Location Information
1918
Allow User To Select A Part(s) Pick Up Location To Pick Up Part(s)
1920
Query Database Of Suitable Delivery Or Part Pick-Up Locations. Obtain Delivery Or Part Pick-Up Information
1922
Prompt User With Terms, Conditions And Delivery Schedule Or Part Pick-Up Schedule
1924
Does User Accept Terms, Conditions, And Schedule?
1926
No
H
Yes
Place Order With Part Procurement Location, Part Pick-Up Location, Or Delivery Location
1928
Confirm Transaction Order And Or Order Information With User. Send Appropriate Confirmation
1930
Bill Or Credit As Required User, E-Commerce Fulfillment Agency, Part(s) Location, Delivery Service, Or Other Appropriate Agency
1932
Exit

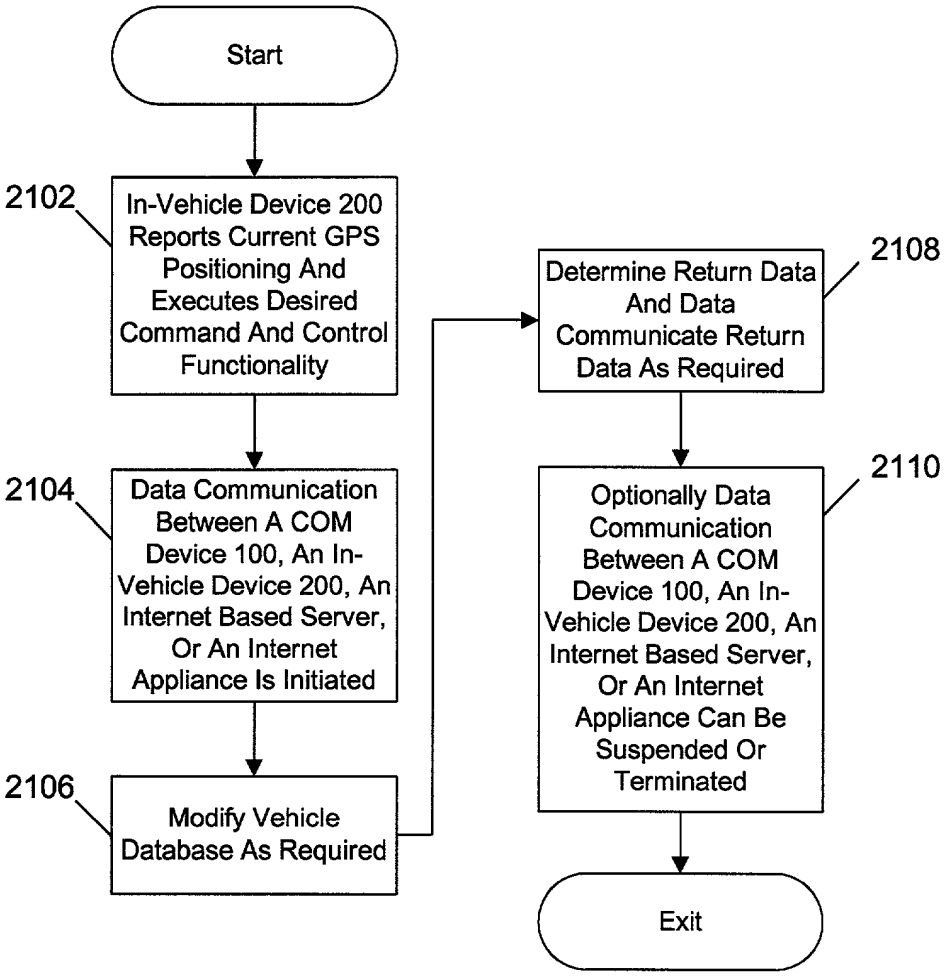
Fig. 20

1900


Start
2002
User Presents Biometrics Input
Biometrics Input Is Authorized Or Otherwise Validated
If Desired, Biometrics Input Can Be Authorized Or Otherwise Validated By Way Of Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance
2004
2006
Is Biometrics Input Approved Or Valid?
No
2008
Prompt User That Biometrics Input Is Denied Or Invalid
Yes
2010
By Way Of In-Vehicle Device 200 Allow User To Operate Vehicle
Optionally Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Can Be Suspended Or Terminated
2012
If Desired Or Required Data Communicate Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server or An Internet Appliance.
Include In Data Communication In-Vehicle Device 200 Status Vehicle Telemetry, Metrics, States And Other Vehicle Data
2014
Exit

2000

Fig. 21


Start
2102
In-Vehicle Device 200 Reports Current GPS Positioning And Executes Desired Command And Control Functionality
2104
Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Is Initiated
2106
Modify Vehicle Database As Required
2108
Determine Return Data And Data Communicate Return Data As Required
2110
Optionally Data Communication Between A COM Device 100, An In-Vehicle Device 200, An Internet Based Server, Or An Internet Appliance Can Be Suspended Or Terminated
Exit

2100

Fig. 22